Wooten's *NEW* COMBAT MODEL • BI-FLI RC by Kraft

MODEL AIRPLANE NEWS

October 1959—35 cents

Douglas Dauntless

FOR ENGINE OWNERS ONLY!

OTHERS READ INSIDE REAR COVER AD

CHAMPION CHEMICALS, INC.
Box 1175 – Station A • Fort Smith, Arkansas

October, 1959

Dear Model Builder:

We would like to sell you our fuels on the basis of merit, not "secret formulas", "mystery ingredients", questionable records or "double talk". We feel that we can speak authoritatively since we have a thorough technical understanding of fuel chemistry, plus 15 years active experience in building engines and compounding fuels for them.

Engines vary in design, age and condition, and likewise, weather conditions vary; all of which places varying requirements on fuel. We, at Champion Products, have concentrated our efforts toward producing three formulas that are tolerant to changes in weather, engine conditions, and needle valve adjustments.

FOX SUPERFUEL is mildest, and is very rich in lubrication. It favors low compression engines, hot weather and is particularly useful in worn engines.

MISSLE MIST, our intermediate formula, tends to favor higher compression engines, medium temperature days, and engines in average or better condition. It also works well in small engines.

HI-NITRO, a very potent brew, is generally used for racing or competition where maximum power is to be obtained at all costs. It is not recommended for sport flying or where engine life is a consideration.

All model engine fuels are Not alike. Each manufacturer varies the ingredients, proportions, and additive to suit his own idea of what is best. We feel that we have the experience and knowledge to do this in the best way that will give you the best motor runs.

We know our engines, our fuels, and our customers. We invite you to compare the performance you get from our fuels with any other manufacturer.

Sincerely,

CHAMPION PRODUCTS, Inc.

Duke M. Fox
Duke Fox
President

Joe White
Joe White
Production Superintendent

FOX SUPERFUEL

the standard of the stunt world

PTS. 95¢
QTS. 1.69
GAL. 5.50

MISSILE MIST

the purple brew for you

PTS. 95¢
QTS. 1.69
GAL. 5.50

HI-NITRO

the next thing to atomic power

PTS. $1.25

Champion PRODUCTS
P. O. BOX 1175-A
FORT SMITH, ARKANSAS

The Winning Entry in the Ready-to-Run Race Car Field

Winner of the 1957-1958 Indianapolis 500-Mile Classics

PLR-3200
$11.95

Complete with Powerful .074 "OK" Cub Engine, Starter, Bridle and Tetherlines

11″ Long

COMET'S Belond AP Special

ALL-PLASTIC True-to-Scale
ENGINE-POWERED
Ready-to-Run
RACING CAR
with "SPEED-EZE"
FRICTION CLUTCH DRIVE

Beautifully molded in dazzling yellow high-impact plastic, this faithful replica of the famed Belond AP Special is an engineering triumph. The extra-powerful motor assures flashing performance. Genuine rubber tires, driver, decals—startlingly realistic! *Complete* ready-to-run—in a box printed in breathtaking full-color!

COMET MODEL HOBBYCRAFT, INC.
501-05 WEST 35TH STREET CHICAGO 16, ILLINOIS

Send for these 2 BIG COMET BOOKS:
The New **Comet Catalog –10c;** shows hundreds of models in color. **20-Page Book**—"What Makes An Airplane Fly"—lots of pictures and diagrams—printed in 2 colors—**25c.**

Another **COMET** *First!*

CO_2 Powered COUGAR All-Plastic Race Car

—with REAL RUBBER WHEELS, brightly-colored hubs, metal axles, clear windshield, driver, steering wheel, decal. 8⅜″ long. Beautiful 4-color box.

Kit No. PL-806 98c

ANOTHER EXCLUSIVE FROM

PERFECT

THE *ONLY* SEE-THRU PLASTIC SELF-FILLING

BULB FUELER

AVAILABLE!

The all new Perfect Fueler is not to be confused with the squeeze bottle types that must be hand filled. **This fueler, which is self-filling and dispenses fuel completely, saves you fuel and puts an end to messy handling. Available in ½ pint, pint and quart size—the new Perfect Fueler will be your favorite flying accessory. Get yours from your favorite hobby shop today.**

Check all these exclusive features . . .

- **Transparent plastic bulb**
- **Built-in fuel filter**
- **Nozzle fits tank**
- **Graduated to measure fuel**
- **Telescoping tube empties can**
- **Fits pocket conveniently**
- **Easy to use**
- **Fast filling**
- **Empties fuel from gas tank**
- **Fills itself**

PERFECT FUELER

1/2 pint size
pint size
quart size

ALL SIZES

Only 59c Each

ALSO AVAILABLE . . .

PERFECT FUEL PUMP

Available in:
1/2 pint size
pint size
quart size

ALL SIZES

Only 69c Each

PERFECT PARTS CO.

for that "finishing touch"

hobby spray gun

operates from vacuum cleaner

The ideal spray gun for modelers, hobbyists, and the *do-it-yourself fan* . . . paint your model planes, cars, trains, boats, display shelves, etc. For that "finishing touch" get the Hobby Spray Gun — and it's . . .

• Simple to operate • Direct spray (minimum waste)
• One filling covers 10 sq. ft. • Nickle plated • No moving parts
• Always in adjustment

only $3.95

sprays dope • vinyl • lacquer • enamel • water base paint

Faster, Easier, with Smoother Finish

Comes complete with hose and attachments to vacuum cleaner

stewart / lundahl co., 7342 Fulton Avenue, North Hollywood, Calif.

P. G. F. CHINN

Foreign Notes

POLAND

Leszno, Poland, was the scene of the 1959 MMS, or "Peoples Democracies" Championships, sponsored by the Communist bloc. Outside of the official FAI World Championships and the annual Criterium d'Europe Control-line Championships, this event has the widest representation of any international contest, all Communist countries, both inside and outside the Soviet bloc, being eligible. At this year's meet (the 7th of the series) Yugoslavia joined in, but Russia, Red China and Rumania were absent. The Russians were said to be too busy preparing for the World Championships.

As usual, events were the three FAI world classes: A2 Glider, Wakefield Rubber and FAI Power. Each country was allowed only *one* contestant per event. With the emphasis on individual achievement that this engenders, there was inevitably much pre-contest speculation as to the probable winners. Vaclav Horyna of Czechoslovakia started as the favorite in A2, but hit a downdraft on his very first flight for only 1:19 and not even four succeeding maximums could lift him above second place. Winner was Norbert Roser of Hungary with a 14:17 total. Poland's A2 champion, Antoni Sulisz, was third.

Favorites for the Wakefield were Czechoslovakia's noted Radoslav Cizek and Hungary's Gyula Krizsma. Cizek lost the contest in the last round and finished 14 seconds behind East Germany's Fischer, who had a winning score of 13:48. Kosowski of Poland was third, Krizsma fourth.

In the power, results were nearer form. Favorite Vladimir Hajek of Czechoslovakia put up a sterling performance to return the only perfect 15:00 score of the meet. This was in a 20-25 mph wind and using a four-year-old model—his well-known *Raketa* ('Rocket') that placed 2nd in last year's World Championships in England. In second place was Hungary's Meczner and Ginalski of Poland was third. The Korean entrant, incidentally, crashed both his models and returned no score.

Overall team scores gave first place to Czechoslovakia, Hungary 2nd, Poland 3rd, East Germany 4th, Bulgaria 5th, Yugoslavia 6th and North Korea 7th.

GREAT BRITAIN

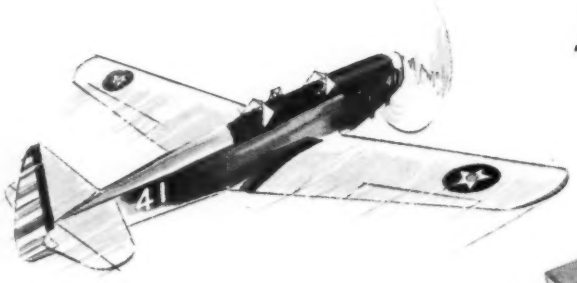
Stock weather for the two-day British Nationals is either wind or rain. This year, at Scampton RAF base, Lincolnshire, it was wind—and plenty of it. Entry was the biggest ever: over 350 in glider, 266 in free-flight gas, 170 in rubber, 153 in team-racing. Altogether, there were 15 events and a wider variety of designs and equipment were seen than ever before.

As reported last month, Stewart Uwins won the RC multi with the best performance yet seen in a National event. Model was Fox-powered Uproar design by second-place Chris Olsen, with Olsen 6-channel gear. Third was newcomer Frank Van den Bergh with a CG 8-channel equipped, Johnson powered, Astro-Hog. No one else got anywhere near these three. Single channel was won by an Eta 29 powered, modified Smog-Hog, with home-built equipment. Second place winner used German OMU radio and Japanese Enya 19 motor.

International class (.15) speed was won.

(*Continued on page* 48)

This 2½ oz. CG "Saturn" receiver needs no extra batteries!



A new highly improved circuit design lets you operate the highly sensitive, light weight SATURN directly from the 3-volt actuator batteries.

Since it weighs only 2 oz. and, in addition, needs no extra batteries, R/Cers can now enjoy superior control flying at minimum sacrifice in weight.

Extremely rugged for its size, the single channel SATURN is guaranteed to operate reliably throughout its 0° to 130°F temperature range.

Perfect mate for the SATURN receiver is the VENUS—a single channel, extremely stable transmitter that'll stay right on frequency through every flight you make.

For complete information on this CG "million miler" R/C combo, see your local dealer soon or write CG Electronics direct.

The "Saturn"—developed from well known RTI-3V

only $34.95

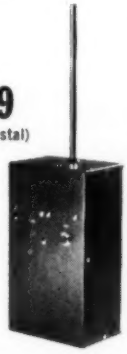
- Size: 1½" x 2⅜" x 1"
- Weight: 2 oz. complete
- Power: 3 volts total
- Temperature Range: Guaranteed to operate between 0°F to 130°F
- Completely transistorized
- Factory pre-tuned

New CG "Venus" Transmitter meets new FCC specs

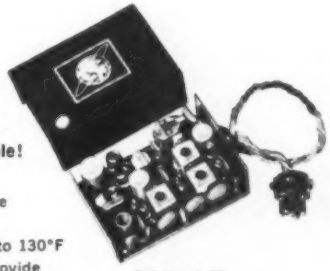
$29.59 (including crystal)

- Weight: approximately 3½ lbs. complete with batteries
- Constant carrier keyed tone
- Factory pre-tuned and tested
- High precision crystal controlled
- Telescoping 54" chrome plated antenna

Crystals available for all new frequencies. Specify frequency desired.



The "Mercury"—finest superhet receiver available!



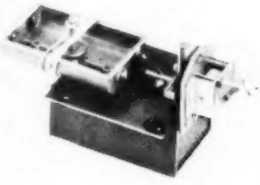
- Size: 1⅞" x 3" x 1"
- Weight: 3½ oz. complete
- Power: 3 volt operation
- Temperature range: 0° to 130°F
- Four IF transformers provide exceptional selectivity and sensitivity
- Extremely reliable in operation

$69.95 (including crystal)

The "Jupiter" Compact—a complete RC unit including escapement

$39.95

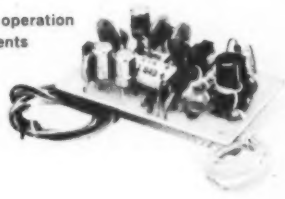
- No electrical installation
- Weight: complete with battery and escapement, 4 oz.
- Size: 2½" x 3" x 2¼"
- Power: only 3 volts required
- Completely transistorized
- Factory pretuned
- Guaranteed for 0°F to 130°F operation



The "Pioneer"—big performance from an economy-sized receiver

$21.95

- Size: 2 3/5" x 1½"
- Weight: 1⅛ oz.
- Economical 3 volt relayless operation
- Operates standard escapements
- Temperature stabilized
- Finest quality printed circuit construction
- Factory tuned and tested



Ask for FREE Catalog

CG ELECTRONICS CORPORATION

Dept. B10 • 15000 Central E., Albuquerque, New Mexico

31st Year of Publication

MODEL AIRPLANE NEWS

JAY P. CLEVELAND, President and Publisher

October 1959 Vol. LXI, No. 4

CONTENTS

CONSTRUCTION

Waco Glider 9
Bi-Fli 16
Nifty 22
Guided Missile 28

ARTICLES

Proportional Engine Control 12
They Turned Back the Clock 18
A Proved "Superhet" 24

FEATURES

Foreign Notes 2
MAN at Work 4
Early Birds 14
Radio Control News 26
Engine Review 30
Home Built Parade 34
Nationals Results 36

WILLIAM WINTER, Editor

WITTICH HOLLOWAY, Art Director

Contributing Editors: Peter Chinn (England), Don Grout, Ed Lorenz, Ted Martin, Bruce Wennerstrom, Harry Williamson

Executive and Editorial Office: 551 Fifth Avenue, New York 17, N. Y.

Advertising Manager, N. E. Slane, 551 5th Ave New York 17; West Coast Adv. Mgr., Justin Hannon, 4708 Crenshaw Blvd. Los Angeles 43, Calif.

Published Monthly by Air Age, Inc. Editorial and Business Offices: 551 Fifth Ave., New York 17, N.Y. Jay P. Cleveland, President; Y. P. Johnson, Vice Pres.; Louis V. DeFrancesco, Treas.; G. E. DeFrancesco, Sec. Second Class Postage paid at Columbia, Missouri. Additional Second Class Entry at New York, N.Y.

Copyright 1959 by Air Age, Inc.
Printed in U. S. A.

by William Winter

► The Nationals began this morning, July 27, at NAS, Los Alamitos, Calif. Low-flying flu bugs having whizzed by our radar screen, MAN at Work is pecking a New York typewriter. Right now, Paul "Sam" Gilliam is rolling along in his motorized wheel chair at the Nats, snapping pix as he goes. After a desperate "they shall not pass" telephone conference, Paul had his sawbones make a fiberglass cast for his broken leg, and Bob Hunter and Johnny Adikes were set to pull Paul's go-cart out of any mudholes.

• • •

► Hats off to the American Wakefield team of Joe Bilgri, Bob Hatschek, and Herb Kothe for their excellent performance in France. Bob placed second—after a seven man fly-off, Joe eighth, and Herb, tenth. Piling up 44.15 minutes total out of a possible 45 minutes, the three won the team trophy. Frantisek Dvorak, Czechoslovakia, who topped them all in the world's oldest and most important modeling event, had a perfect 900 seconds, plus 285 in the fly-off which came after 7:30 in the evening. Bob's extra flight went for 256. The very capable Canadians took third, Jack McGillivray; and sixth, Don Mackenzie (The Bardon, February '59 MAN). Jack had 900 plus a 245, and Don's fly-off hop was 184.

To round out the first ten, fourth was Stanislaw Zurad, a Pole, with 900 plus 230; fifth, Vladimir Zapachny, Russia, 900 plus 198; seventh, Lennart Tysklind, Sweden, 900 plus 121; ninth, Artur Cardoro Sueno, Portugal, 875. Bilgri totaled 883 for his eighth, and Kothe, 873 for tenth.

Testifying to the bitter competition are the team scores, ranging from 2656 for USA in first, to 2257 for Hungary at tenth. The rundown; USA: second, Canada; third, Great Britain—a total of 2409 without a man in the first ten!; fourth, Finland; fifth, Italy; sixth, Germany; seventh, Sweden; eighth, Portugal; and tenth, Hungary.

Sixty-one contestants from 22 countries stepped up to the firing line.

An amusing sidelight to MAN was the picture release from Pan American showing our three men embarking; on the next day Bob Hatschek phoned in the scores. Didn't you go to Europe? we asked. Oh sure, was the comeback, we flew the 707! Bob also grabbed something mighty interesting which MAN hopes to publish, a bona fide Russian Wakefield, round rubber and all. Bob (*Continued on page 60*)

NEXT MONTH'S COVER Ryan STM

SUBSCRIPTION PRICES

SEE PAGE 57 FOR ANNIVERSARY SUBSCRIPTION OFFER

Payment from all countries except Canada must be in U.S. Funds.

CHANGE OF ADDRESS—Send to MODEL AIRPLANE NEWS, SUBSCRIPTION DEPT., 551 FIFTH AVENUE, NEW YORK 17, N.Y. at least one month before the date of the issue with which it is to take effect. Send old address with the new, enclosing if possible your address label or copy. The Post Office will not forward copies unless you provide extra postage. Duplicate issues cannot be sent.

PLANE ON THE COVER

The Douglas SBD-3 Dauntless probably was the most effective of all Navy WW-2 dive bombers. At Midway, the Dauntless hammered enemy carriers. Carried a thousand-pound bomb under the belly, had two forward-firing .50 caliber machine guns, and two flexible .30's. Span was about 41½ feet. Army Air Force A-24.

NOW AT NEW LOW PRICES

ALWAYS USE OK ENGINE FUELS

FOR ALL GLOW ENGINES . . .

45¢ ½ PINT — 80¢ PINT — $1.40 QUART — $4.50 GALLON

"OK" DIESEL FUEL . . . 80c PT.

Minimum takeoff and maximum climb with plenty left for flashing acceleration in maneuvers. Plus purring smoothness when you throttle back to cruising.

That's what you get from "OK" Glow or Diesel Fuels. More flash, fun and action. Finer control with fewer adjustments and coaxing.

"OK" Fuels leave your engines clean, free from varnish or residue. Ready to go, even after long usage. Whether you're in big time competition or flying for fun, insist on "OK" Engine Fuels . . . the kind that give you the 3 big features you want.

BUY OK GLOW FUEL IN THE NEW ECONOMY SIZE GALLONS AND SAVE!

It's the economical way to buy OK Fuel particularly for use in meets, contest flying, clubs, or just for your own use. **Only $4.50**

COMPLETE AS SHOWN

$1.25

FOR SUPERB ENGINE OPERATION GET AN "OK" ACCESSORY KIT

CONTENTS: ½ pint OK Glow Fuel.
1 filler spout with plastic tubing.
1 set battery leads fully assembled and soldered with battery connection and glow plug clip.
1 combination plug wrench and screw driver.

For Use with All Model Engines

AT LEADING HOBBY SHOPS EVERYWHERE

HERKIMER TOOL & MODEL WORKS

AHC JAMBOREE OF FAMOUS BRANDS VALUES

SAVE! AHC IS FIRST IN SERVICE SAVINGS & SATISFACTION World's Largest Selection, Too! STOCK UP! SAVE AT AHC!

AHC GUARANTEES 100% SATISFACTION . . . OR YOUR MONEY BACK

GLO ENGINES

COX .020
"Pee Wee" Sensation that flies most 1/2A planes. 1½" high. Develops max. power at 18,000 RPM.
3.95
COX .049 $4.95
Olympic .15 12.98 Sportsman .15 7.98

Fox .29 or .35 15.95 EA.
Two most popular sellers. Dependable performers. Gives you easy starts easy handling
Fox .099 4.95 .021 14.50
Fox .15 6.95 .19 or .25 14.50
2 Speed 15.50 Exhaust Valve 24.95
Fox .35 Combat Special 19.95

K&B .29 or .35
From K&B Allyn - a couple of excellent performers. For fun or trophies, they're "Choice of Champs"
15.95 EA.
K & B .099 9.95
K & B Torpedo 19 or 23 ea. 13.95
K & B 2 Speed .15 11.95 .19 16.95
K&B Torpedo .15 10.95 .295 15.95
K&B 19 B.C. 19.95 35 R.C. 22.95
K & B .45 19.95 45 R.C. 27.95

McCOY .19, .29 or .35
We have em all . . . famous McCoy "Red Heads". We hear nothing but raves on these engines
.19 $7.95
.29 9.95
.35 11.95
McCoy .099 7.95
McCoy 60 40.00

3.95 OK CUB .049A
The hottest 1/2A engine you can buy at a new low price. Fuel-fue nylon tank, prop & spin starter.
O.K. Cub 049B Kit 3.95 Aumbiel 6.95
O.K. Cub .049S w starter 6.95
O.K. Cub 074 5.95 Plan. 6.25
O.K. Cub 099 5.95 Plan. 6.75
O.K. Cub 14 or 19 ea. 6.95
O.K. Cub .29 — 11.95, .35 — 12.95

DOOLING .29
For Modelers who demand the finest. More horsepower per ounce of wt. than any other engine.
23.95

ENGINE TRADE IN SERVICE

We meet all competition! If anyone advertises a higher trade-in allowance in this issue, clip the ad and send it to our N. Y. office with your order. BONUS ITEMS INCLUDED AT NO EXTRA CHARGE. Your old engine is worth 25% of the amount of your purchase. Only 1 engine accepted per order. (Sorry, ONLY 10% on special sale merchandise and R.C. Equipment). If in doubt, send payment in full and we will refund balance.

VECO .35 RC
Smooth, dependable power from idle to top RPM's without a falter. Order this popular engine from AHC
19.95
Veco .19 11.95 .29 or .35 14.95
Veco 19 R.C. 15.95 .35C 16.95
Veco 100 Series .29 or .35 18.95

JET ENGINES

PAA LOADER $1.98
The terrific JETEX "150" . . . a high performance, solid fuel jet engine. Thrust 1¾ oz. Wt. ¾ oz. Order now.

Jetex 50D
Thrust 4 oz. Ideal for most jet models. Economical.
98¢
JET FUELS
Jetex 50 (10) .50 (20) .90
Jetex 150 10 1.25
Berkeley Hi-Y 10 .59
Jetex 600 20 1.50

DYNAJET "REDHEAD"
35.00
Holder of all world records for jets. Powerful gas engine develops 4½ Lb. Thrust! Length 21½". Wt. 16 ounces.

MARINE ENGINES

Cameron .19 Water Cooled
Popular inboard marine engine that's loaded with power.
Single $14.95
Dbl. Jet 16.95

Sea Fury OUTBOARD .049 or .060
Allyn's sensational outboard's . . . model builder's choice.
.049 — $10.95
.060 — $11.95

COMBAT MASTER $2.50
Scientific's terrific new U-Control thriller for 1/2A engines. 18" span. All prefab with carved fuselage.

THUNDER BIRD 2.50
Another popular Scientific U-Control model. 16" wingspan biplane for 1/2A engine. Prefab. Carved fuselage.

SMOOTHIE 7.95
VECO's $2" contest winning stunter. Designed for windy weather. Wingspan 52". For .29 to .35 eng.

STERLING "RUFFY" $7.95
Contest type full-stunt model. 50" wingspan for .29 to .35 eng. All balsa & plywood die cut parts.

MODELCRAFT "ZERO" 2.95
Took Matsuda's famous "ZERO" that has won a "string of Firsts" in competition. For .049 engines.

EVERY DAY IS SAVINGS DAY AT AMERICA'S HOBBY CENTER

SNIFFER "29" 2.25
Popular free flight model from "Midwest". Wingspan is 29". Powers with .020 to .049 engines. Order it!

Fitting Set $9.95

42" CORVETTE $26.95
Sterling's exciting Chris-Craft model! An R C fan's dream performer. 48" long. 14" beam. All prefabricated.

22" EXPRESS CRUISER 3.95
Berkeley's powered speedboat model for gas or elect. motors. 22" long. Prefab kit with mahogany planking.

P-51 Giant Mustang $14.90
Brand new from Wen Mac. Big 31" span Mus Wen Mac .049 engine and rotomatic starter. Includes flight lines and control handle.

PIPER TRI-PACER $7.95
Brand new COMET scale flyer with a Cub .049A engine. Colorful, rugged plastic model with a 16" wingspan.

O&R MOTORJET 16.95
All metal racer. Starts and founders automatically. Has an .04" size with automatic starter. A real "steel!

PROP ROD $9.95
Cox's streamlined, colorful roadster. 12" long. With an .049 Babe Bee eng. Unbreakable spring starter, too!

RUBBER MODELS

Guillow Flying SCALE MODELS 1.29 ea.
18" spans. Rubber Pwr. WW I: Heroes: SE5, Spad, Fokker D7, Arrow, Nieuport, Sop. Camel
Morane Nieuport
British SE5 24" Span (Rubber 2.95
Nieuport 11 (Shown) 24" Span 2.95
Thomas Morse Scout 24" Span 2.95

AHC HAS EVERYTHING

ORDER FROM THIS MAGAZINE . . . OR SEND FOR OUR CATALOG

ONLY AHC GIVES YOU ALL THESE EXTRAS!

1. One year subscriptions to Model Airplane News, Air Trails and Flying Models or their equivalent value to our regular customers.
2. 14-Day Money Back guarantee on unused purchases.
3. BONUS TERMS with every engine ($3.95 or over) purchased. Includes: Correct Size Propeller, Glo Engine Handbook, etc.
4. BONUS ITEMS with Gas Planes (selling at over $1.95) . . . includes Construction Manual, Rubber Wheels, Insignia, etc.
5. IN U.S.A. no postage or packing charges for orders of over $2.00 (include 25c if order is under $2.00). We insure safe delivery ANYWHERE IN THE WORLD. Outside of U.S.A. (except APO & FPO) add 10% for postage (minimum 50c).
6. Membership in "Modelcrafters of America," the club that keeps you up to date on gas modeling and SAVES YOU MONEY ON YOUR PURCHASES. Over 100,000 members!
7. No "minimum" orders. Any order is welcome.
8. Fastest Service in the World! Whether your order is for 5c or $500.00, you get our famous 24 HOUR SERVICE
9. Most complete model stock in America—gas, rubber, solids, etc. If it's advertised, we can usually supply it.
10. Competent understanding of your modeling problems.
11. 80 page giant illustrated catalog FREE with order On Request

SATISFACTION GUARANTEED OR YOUR MONEY BACK

DIESEL ENGINES

OK CUB .049
Herkimer's rugged "shock proof" construction. Excellent performers
6.95 CUB .079 7.95
McCoy .049 (AA) 7.95

PRICES SLASHED

TIGER JET ENGINE
Save a big $10.00 on this powerful jet type engine with a 2½ lb. thrust. Features new, easy glo type starting. 18" long
REG. $19.95 9.95

"Hi-Pulse" Jet Engine
$32.95 VALUE
Big 3½ lb. thrust. Size: 21¾" long, 2½" diam. Weighs 14 oz.
19.95

U-CONTROL

AMERICAN BOY $1.29
Scientific's profile U-Control trainer for 1/2A eng. (.020 to .074). 18" span. Ideal for beginners in control line.

FLYING CLOWN $1.95
From P.D.Q. this popular 28" span profile model. Ideal for sport, stunt or combat flying. .19 to .35 eng.

VECO "RENEGADE" 3.50
Simple to build from the pre-fab kit. Wingspan 33". For .29 or .35 engines. Top combat winner.

CG STUNTMAN 23 $1.95
Exciting new stunt model by Carl Goldberg. 23½" span. Die cut interlocking all balsa construction.

Jr. Flight Streak 31" Span $2.95

FLIGHT STREAK $3.95
Top Flite's popular combat or stunt profile flier for .15 to .35 engines. 42" wingspan. Order from AHC!

B17G FLYING FORTRESS 19.95
Great new multi-engine controliner by Berkeley. 2 or 4 .09 to .15 eng. 62" Span. ½" scale. Prefabbed

Rearwin Speedster $5.95
Jetco superscale model for FF or controline. 38" span for .049 to .19 engines. Order yours from AHC.

LITTLE MUSTANG 1.95
Here's Scientific's exciting model of the famous escort fighter. For any 1/2A eng. 18" span. Carved fuselage.

BOEING P-26 $4.95
Berkeley's deluxe carved fuselage controliner for .09 to .15 engines. 31" span. Prefab. Has metal Cowl.

ORDER NOW! GET ALL OF THESE AHC "EXTRAS"

RINGMASTER $3.50
A combat-stunt ace from STERLING for .29 to .35 eng. Profile prefab kit. Big 42" span. Order yours from AHC.
Ringmaster Jr. 30" .099-.19 $2.95
Super Ringmaster 42" .19-.60 4.95

REDSKIN 5.25
HENRY ENG.
Another popular model . . . the fabulous "Redskin." Terrific sport or team racer. For .19 to .35 eng. 31" span.

FLIGHT TRAINER $2.95
Sterling's entry for beginners in controline flying. Takes plenty of punishment. 24" span. .09-.15 eng.

STUNT MASTER 1.69
½A stunt model from Scientific. It's highly colorful. Powers with ½A engines. Prefab. carved fuselage

AERO "15" 11.95

R/C AERO 9 8.95
From AERO MODELS . . . this very super R. C. Flyer. Designed to withstand shock. 48" span. For .09 to .15 eng.

PIPER CUB J3 7.95
Sterling's top notch model for R/C experts. 54" span for .09 to .35 eng. Die cut and shaped parts.

SPECIAL BONUS OFFERS

FREE of extra cost with every **GAS ENGINE**
Bonus items include: Tube of "REV-UP" Lubricant (makes your engine last twice as long). Ownership Decal. Correct Size Propeller. Glo Engine Handbook. Mounting Nuts & Bolts. Numeral & Alphabet Decals. etc. etc. FREE of extra cost

FREE at extra charge with **GAS PLANES**
selling at $1.95 or over
Bonus items include: Ownership Decal. Gas Model Construction Manual. Correct Size Rubber Wheels. Insignias. Numeral & Alphabet Decals. etc. FREE of extra cost

WE MATCH ANY OFFER

AHC matches any offer made by any other advertiser. Attach ANY ad in this issue to your order — and take advantage of the AHC "extras."

ORDER NOW! Get all these AHC "EXTRAS"

RAT RACER $4.50
Guillow's U-Control model for Rat Race event. 24" span for .29 to .40 eng. Pract. indestructible.

WHIPSAW $1.95
Combat and stunt model from Enterprise. Profile. 31" span. For .09 to .19 engines. U-Control.

"WOW" $3.50
Exciting different flying model from CONSOLIDATED. 35" Wingspan Powers with .29 to .35 engines.
WOWEE 23 — ½A model $1.95

FREE FLIGHT & R/C

BLAZER ½A 2.50
C-G MODELS contest flyer for .049 engines. 40" Wingspan. A truly excellent performer. Order from AHC

LIVEWIRE TRAINER $9.95
DeBolt's popular R.C model for .09 to .15 eng. Big 48" span. Simple, rugged construction.

GRUMMAN F11-1F "TIGER" $2.95
Berkeley's exciting ducted fan jet model for .020 engines. Free flight or "Monoline". 25" length. Formed canopy. Detailed plans.

STINSON RELIANT $24.95
62½" span R.C old timer brought back by popular demand by Cleveland. For .19 to .60 engines.
Lascomb Sedan 76" 19-.35 14.95

MODEL BOATS

Colonial Fisherman $24.95
We've heard nothing but "raves" about this famous 42" "IDEAL" R.C BOAT. Prefab with welded wood hull

YELLOW JACKET 6.95
Brand new WEN MAC gull wing ready to fly sensation. Big value outfit. Rotomatic starter. Real bargain!

SUPER CUB 105 7.95
Realistic, smooth flying COX model. Hi-impact plastic. Comes with Thimble Drome .049 engine. 17½" wingspan.

READY-TO-RUN

P-40 FLYING TIGER $10.00
Cox's terrific new Ready-to-Fly scale model. Full 20" wingspan. Powered with Super Bee engines.

With Recoil Starter $13.95
AUTOMITE $12.95
Speeds at 35 mph. A truly fun to operate race car by Wen Mac. Complete in every detail. Plastic.

With Recoil Starter $12.95
AQUAMITE $10.95
Here's Wen Mac's extremely popular speedboat—ready to run and super seaworthy. 13" long. All plastic.

MISCELLANEOUS

FAMOUS MEECO
PLASTIC SPINNERS
Colors: Yel. Blk. Silv. Blue. Red. Grn.
1¼" Diam. Hoodle Nose or Std. .39
1½", 1¾", 2" or 2¼" Needlenose .39
1½", 1¾", 2" or 2¼" Std. .39

Accessory Kit
Oil Can. for all model engines. Has fuel, grease, battery test, plug wrench, etc.
$1.25

U-REELY
Our most popular control handle.
Std. Wire $7.95
Braided .015 ..... 8.75
Braided .019 ..... 9.95

MAGNESIUM SPEED PANS

	Top	Btm.	Cowl	Stab	Wire
½A	2.40	1.95		.35	
A	2.95	2.95	2.50	1.35	3.00
B	3.45	3.45	2.75	1.60	4.50
C	3.95	3.95	3.00	1.75	4.95

OVER 5,000,000 MODELERS KNOW

YOU BUY WITH CONFIDENCE AT AHC

Use Our Handy Order Blank Next Page

HOW TO ORDER

Send payment in full (sorry, no stamps or C.O.D.'s) to

AMERICA'S HOBBY CENTER
146M West 22nd St., New York 11, N.Y.

Why Order from any Manufacturer?

We carry in stock all the planes, motors, etc. of every manufacturer advertising in this magazine.

ORDER from AHC and GET FREE FREE FREE Postage & Insurance **PREMIUMS** Membership in MODELCRAFTERS of AMERICA

25 Manufacturer's CATALOGS & SHEETS For Only **$1** plus . . . 80 page Giant AHC Catalog that sells for 25c

Herkimer (OK) - Enterprise - Comet - Chemtrol - X-Acto - Wen Mac - Stanzel Cox - Consolidated - K&B - Fox - De Bolt - Hawk Models - Berkeley - Sterling - Austin - Aurora - Revell - Scientific - Veco - Monarch - Etc.

Model Where cost at a particular catalog, we reserve the right to substitute

AHC RADIO CONTROL

FAMOUS BRANDS AT BIG SAVINGS

SAVE!

AHC IS FIRST IN SERVICE SAVINGS & SATISFACTION
World's Largest Selection, Too!

Buy With Confidence at AHC . . . Where You Get Not One But TWO GUARANTEES!
Manufacturer's Quality Guarantee & AHC'S Famous 14 Day Money Back Guarantee

AMTRON

AN AHC EXCLUSIVE! A FANTASTIC VALUE, TOO!

"SPACE CADET"

HI-FI RADIO CONTROL OUTFIT
OPERATES ANY MODEL . . . BOATS, CARS & PLANES
From 1/2A to the Very Largest • Up to 1½ Miles

We've sold hundreds of these terrific R/C outfits! They're made exclusively for us by one of America's biggest and best known Radio Control manufacturers. You Save Many $$$ because of our huge purchasing power. Performance-wise, the "SPACE CADET" outfit is exceptionally dependable and easy to operate. Assembly is extremely simple, too. Operates on 27¼ mc. Features a lightweight (under 3 oz.) compact RECEIVER. Deluxe components include: hard 3S4 tube, genuine 6000 ohm Sigma Relay and only 4 major parts . . . yet gives maximum performance. 100% tested and proven equipment! All brand new! No surplus or junk parts! The powerful, hand held TRANSMITTER is a precision instrument, too. Comes in a sturdy all metal case. Complete outfit includes both Receiver and Transmitter . . . plus tubes, escapement, crystal, etc. All for the one low price. All prefabricated assembly, too . . . with easy to follow instructions included.

MADE TO LATEST FCC REGULATIONS, TOO!

GET BOTH THE RECEIVER AND TRANSMITTER KITS
Both for only $14.95 Less Batteries
A Verified $25.00 Value!

ASSEMBLED OUTFIT
Same as Above, But
Ready-To-Operate $23.95 Less Batt.
ALL FINISHED, TESTED AND ASSEMBLED READY FOR USE.

INDIVIDUAL PRICES

"Space Cadet" RECEIVER KIT with All Components, less batteries—only	$ 6.95
ASSEMBLED RECEIVER. Ready-To-Use and Tested, less batteries—only	10.95
"Space Cadet" TRANSMITTER KIT, All Components, less batteries—only	8.95
ASSEMBLED TRANSMITTER. Ready-To-Use and Tested, less batteries—only	12.95

R/C HEAD PHONES

	Reg.	SALE
#2260—2000 Ohm Dbl.	5.25	2.98
#2262—4000 Ohm Dbl.	4.50	2.95
#2261—1000 Ohm Sngl.	2.75	2.29
#895—1000 Ohm Sngl.	2.75	1.49

GUIDE TO Radio Control 25¢
Covers all phases of Radio Control for models—theory, practice & operation. A must for R/C fans.

20¢ EACH Nylon Gears

#	Teeth	10 Dia	OD
N1	12	3/32	6/32
N2	24	1/8	17/32
N3	36	3/16	1/4
N4	48	3/16	11/32

½ PRICE
$1.98 R/C Deluxe Receiver INSTALLATION KIT
98c

CRYSTALS 27.255 mc.
$6.50 VALUE 2.89 MEETS FCC REGS.
Now R/C MC Bands
Sale! 26.995; 27.045; 27.095; 27.145 or 27.195 3.95

MILLIAMETERS
AHC Sale on Sturdy R/C Test Meters

	Reg.	Sale
0-3	$4.95	$3.95
0-5	3.95	2.95
0-50	2.75	2.29

R/C TUBES

	Reg.	SALE
3S4	1.40	.99
XFG1	3.85	2.95
3A5	1.25	.98

2.95 MINITONE Miniature DC Motor
Ideal power drive for servos, actuators, etc. Less than 2½ oz., 1¼" high. Noiseless and very efficient. 6 Volt.

9.95 Field Strength Meter
Complete, wired, adjusted and ready-to-operate. Has quality components—includes plug-in antenna, integral meter, plastic case.

TWIN TUBE • PRINTED CIRCUIT AMTRON "Vanguard" DELUXE R/C OUTFIT

Here's the Precision Equipment You Always Wanted at a Fraction of What You'd Expect to Pay!

"VANGUARD" RECEIVER is a superior quality outfit—unmatched for reliability, accuracy and performance. It will fit into just about any model you can find, weighs a mere 1¼ ounces (including relay) and measures 1½" x 2" x 1". Despite its light weight and compact design, it is one of the finest precision R/C instruments ever made. Other features include: One stage single tuning • All printed circuits • Twin diodes • Accurate and positive pin point control at all ranges • Low .15 battery drain as compared with .3 or 4 on most receivers • Saves you countless $$$ on battery costs • No pot squealing • 22½ Volt battery operation • Transmitter that eliminates sensitivity control • New improved 1AG4 tubes • Super sensitive 5000 Ohm Janco relay • Plastic case • All prefabricated and easy to assemble • Complete instructions included.

SALE PRICED AT LESS THAN THE REGULAR WHOLESALE COST!

"VANGUARD" TRANSMITTER is a powerful output instrument with all the precision components found only in the most expensive units. It has a simplified built-in tuning indicator with a one attachment feature. Tuning-Eye light for E-Z checking. Printed Circuit Chassis. Exclusive new design that reduces "B" battery drain, yet supplies maximum power output. Other quality features include: Deluxe Crystal. Powerful 3A4 Tube. Handsome portable Aluminum case that you easily hold in your hand and really easy to assemble construction. The step-by-step assembly instructions are a cinch to follow. R/C fan who have seen the "VANGUARD" TRANSMITTER tell us it's the biggest bargain they ever saw—equal in power and quality to the most expensive!

ASSEMBLED OUTFIT Same as Above, But Ready-To-Operate $34.95 Less Batt.

COMPLETE OUTFIT RECV'R & TRANSM. $24.95 Less Batt. $39.95 VALUE

INDIVIDUAL PRICES

Vanguard RECEIVER KIT with All Components, less batteries	$12.95
ASSEMBLED RECEIVER. Ready-To-Use & Tested, less batteries	17.95
Vanguard TRANSMITTER KIT, All Components, less batteries	12.95
ASSEMBLED TRANSMITTER. Ready-To-Use & Tested, less batteries	17.95

R/C FANS!

AHC HAS EVERYTHING YOU WANT! EVERY BRAND! ALL PARTS AND ACCESSORIES! SEND US YOUR ORDER AND GET ALL THE AHC EXTRAS!

RADIO CONTROL

R/C Recv'r & Transmitter

Berkeley Aerotrol Mark IV	
Recvr. & Trans. Combo Kits	75.95
A'trol Mark IV Assembled	24.95

Receivers—Single Channel

Ace Comdr. Kit 8.65 Asmbld.	12.95
Magic Carpet Mark III Asmbld	27.95
Ace TR 4.5 Recvr. Kit	22.95
Badaco [Assembled]	24.95
Bramco [Assembled]	24.95
Citkship PR27 17.95 Assembled	21.95
Citizenship 465AR [Assembled]	24.95
Citkship 3VTR 34.95 SSTR	69.95
CG Ri Kit 19.95 (Assembled)	26.95
CGRT1-2V 39.95 CGRX-1	34.95
Dalton R100 [Assembled]	24.95
Dalton R199 [Assembled]	29.95
Esco T.N.T. Recv'r Asmbld	21.95
Gyro 22X 16.95 With Relay	21.80
Kestrel #100 13.95 200	19.95
Super A'trol 18.95 [Assembled]	21.95
Tone Aerotrol [Assembled]	29.95

Receivers—Multi Channel

(3) Citizenship REB	44.95
(2) CG KT2 [Assembled]	69.95
(3) CG KT3 [Assembled]	79.95
(5) CG KT5 [Assembled]	119.80
(8) Bramco "Regent 8" Asmbld.	118.00
(8) Citizenship MSR-8	99.95
(8) CG RT8 [Assembled]	139.50
(8) Citizenship SS-MSR8	149.95
(10) Bramco "Regent 10"	150.00
RAYTROL: (3) Assembled	64.50
(5) 86.00 (6) 91.75 (8)	124.00

Transmitters—Single Channel

Ace Comdr. Kit 9.95 Asmbld.	14.95
Magic Wand Kit 19.95 Asmbld.	24.95
Badaco [Assembled]	34.95
Bramco Trans. [Assembled]	36.95
Citkship CTX [Assembled]	39.95
Citkship Kit 15.95 Assembled	19.95
MKT Citkship Kit Transistor	19.95
MTR Citkship Assembled	26.95
Citizenship 465MC [Assembled]	24.95
Citizenship 465MC Transistorized	26.95
CG T12 Kit 24.95 (Assembled)	33.95
Dalton T99 (Assembled)	21.95
Dalton T100 (Assembled)	29.95
Gyro RX1 Trans.	49.50
Kestrel 500T [Assembled]	34.95
Super A'trol 19.95 (Assembled)	24.95
Tone Aerotrol (Assembled)	49.95

Transmitters—Multi Channel

(2) Babcock 465MC (Assembled)	69.95
(2) Citizenship REX (Assembled	39.95
99.50 CGT8	99.95
(5) CGT5 Assembled	89.95
(8) Citizenship MST-8	99.95
(8) Bramco [Hand Held]	119.00
(10) Bramco [Hand Held]	131.00
RAYTROL: (3) [Assembled]	88.00
(5) 68.75 (6) 79.20 (8)	98.00

BOOKS

AHC HAS 'EM ALL

Order the Radio Control Reference Books You Want From AHC. If It's in Print, We've Got It!

Radio Control Hdbook by McEntee	2.25
Simple Radio Con. by M. G. W'dbby	1.00
Application of R/C by Lindsey	1.50
Model Con. by Radio By E. Safford	1.00
Com. R/C Equipment (Hobby Helo.)	.50
Basics of Radio Con. (Hob. Help.)	.35
R/C for Planes & Boats by Winter	1.00
Radio Con. of Models by Somerhoff	1.50
R/C for Model Boats by McEntee	1.00
Guide to R/C, Winston Minibook	.25

R C Parts & Accessories

Gem Relay 5000 ohm 4.25; 7500	4.75
Gem Micro 5000 4.95 7500	5.45
Super Aerotrol Escapement	3.95
Bert, DE Relay 750 Comp. Escap.	5.95
Babcock Elec. Compound	8.95
Babcock Positionable Servo	12.50
Babcock Proportional Servo	14.50
Babcock Proportional Relay	19.95
Babcock Super Comp. Escap.	9.95
Babcock Mtr. Control Escap.	8.95
Selectronic Fuel Tank (Ideal)	6.95
Citizenship Escapement 4.95; S.E.	7.95
Citiz. Servo MRM 282M-1R3M	
3R 14.95 Kit	11.95
Cameron SN Escape (2 pos.)	8.95
Cameron SN Escape (4 pos.)	8.95
Cameron Compound Escapement	8.95
Cobb Escap. 2 or 3 Pos.	5.95
Cobb Elec. Comp. Electro SN	6.95
Electro 3 Pos. 8.95 Elec. Comp	9.95
Slim Line	8.95
Babcock Elevator Servo	12.50
Bramco Variable Compound Single	9.95
Dual 10.95 Rudder Elev.	9.75
Bomar Servo 14.95 SN Escap.	8.95
Multi-Servos 2 PN 11.95; 3PJN	14.95
2 PJN 11.95; 3P 10.95; SPN	24.95
2PJNX 12PNX or 3PJNX ea.	14.95
Multi-Servo Rudder L or R	10.95
Multi-Servo Elevator U or D	10.95
Relay (Amtron) Super Sensitive	3.95
Citiz. IRE Inst. Kit	4.95
U-16 Battery Box 1 cell .30; 2 cell	.50
Battery Boxes: 1 cell .25; 2 cell	.50
3 cell .65; 4 cell .85; specify battery	
tubes: XFG1 1.85; 1A5 1.25; 1AG4 1.95	
3V4 1.75; 1U4 1.75; 1U5	1.50
Test Meter (Citizenship)	23.95
Batteries: XX45 or 467, 67½V	3.50
XX30 or 405, 45V	2.95
60 or 742, 15V	1.80
U15 or 412, 22½V	1.80
0-3 Milliameter 4.95 0-50	2.75

R/C MODELS

Berkeley "Astro-Hog" $15.95
Sensational winner of 1st, 2nd, 3rd & 4th place in Multi - 1958 Nationals. 72" span. Length 50". For .35 RC engines. Order yours from AHC.

Babcock "Tri-Pacer"
Fuel-proofed plastic model for R/C, F/F or U/Control flying. 37" wingspan, all prefab to assemble in a few hours.
AERONCA CHAMPION
All Plastic, 40" Span
NEW For .049 to .074 Eng. 9.95

Aero 9 - 48" .09 to .15	8.98
Aero 15 57" - .15 to .19	11.98
Aeronca C3 36" .035 - .099	2.80
Aeronca C3 64" .09 to .19	6.95
Aeronca Champion 37" Plast. .049	9.95
Aircoupe 46" .09 to .29	14.95
Astro Hog 72" .35	15.95
Bird Dog 36" FF AA	2.95
Bootstrap "A-BC" 54" AA-A	6.95
Breeze Jr. 42" .049 - .074	6.98
Breeze Sr. 56" .09 to .23	14.95
Buhl Pup 27"	3.50
Butter 48" - .15 to .35	9.95
Cessna 170 72" .35 to .35	14.95
Cessna 172 - 54" .09 to .19	8.95
Cessna 180 35" AA	2.95
Cessna 180 48" .09 to .15	6.95
Clipper 34" AA	2.95
Custom Linewire 66" .25 to .35	21.95
Custom Privateer 114" .45 - 1.2	19.95
De Haviland Beaver 48" .035	5.95
Douglas 82b Invader 88" .15-.35	16.95
Esquire 52" .049 to .099	7.95
Explorer 56" .15 to .29	14.95
Fairchild PT-19 - 72" .15 to .29	24.95
Fairchild PT-19 - 48" .09 to .19	6.95
Fokker D-7 - 28" .049 to .074	4.98
Helioplane 27" .049 to .14	4.95
Kitten 34" .020 to .074	4.95
Linewire Champion 56" .15 - .19	13.95
Linewire Trainer 48" .09 to .15	9.95
Linewire Trainer 64" .09 to .15	12.95
Linewire Super Cub 56" .15 - .19	13.95
Luscombe Sedan 76" Cab.	24.95
Mamba Trainer 48" .049 to .099	6.95
Miss Tino 46" .049 to .074	6.95
Monocoupe 64" .09 to .45	12.95
Navion Super 260 66" .35 to .65	16.95
Pacific Cub 54" .09 to .35	7.98
Piper Comanche 54" .09 to .15	8.95
Piper Cub J3 71" .15 to .25	10.95
Piper Tricycle 44" AA-A	6.95
Piper Tripacer 37" Plast. .049	9.95
Piper Tri-Pacer 54" A-B-C	12.95
Reisel Rudderbug 52" A	8.95
Sea Cat 66" .15 - .25	9.95
Sioux 36" .039 to .074	3.25
Smoo Hoo 72" .29 to .35	27.95
Spirit 64" .09 to .23	10.95
Super Buccaneer 90" - C-D	19.95
Waco Cabin 52" .15 to .29	9.95
Waco Cabin 36" .049 to .099	3.98

RADIO CONTROL BOATS

Corvette 48" (Sterling)	26.95
American Scout 50" (Sterling)	16.95
Ocean Tug 35" (Ideal)	24.95
Owens Bridge Sedan 23" (Ideal)	10.95
Sport Fisherman 42" (Ideal)	24.95
Constellation 27" (Berkeley)	6.98

Wow! 38" SPAN
FOR ENG. 051 to .099
BRIGADIER "BC-38"
Control Pin 1 R.F. R/C or PAA Lead. A real buy!
SALE! $1.95

REG. $5.95 $3.95
Compound Escapement
Converts single channel R/C sets to multiple control. Completely assembled
Ideal heavy-duty unit you can buy. Carries our famous Money Back Guarantee

R/C ALIGNING TOOLS
REG. 65¢ 39¢
Choice of Flat Screwdriver or Hexagon Tip

½ PRICE SALE

AHC SAVES YOU 50% ON THESE TOP QUALITY, E-Z TO OPERATE "BABCOCK" R/C INSTRUMENTS

2 CHANNEL 465 mc.
Transmitter BCT-7
By far the finest, most reliable unit made.
REG. 69.95 34.95

R/C Fans! Here's your chance to own the "Cadillac" of R/C equipment at tremendous savings. The BABCOCK BCT-7 is the world's finest modulated multi-channel UHF frequency transmitter . . . FCC type approval #CR425. Features include: High frequency 5 and 7 Kc. modulation. 3 element antenna for superradiation efficiency included at no extra cost. Built-in voltage indicator. Convenient hand-held size . . . 8¼x6¼x3. Both channels can be operated simultaneously or independently. Fully factory assembled and tested. This is the Brand New 1959 model . . . and quantity is limited! Order this AHC super bargain now . . . while the supply lasts!

SINGLE CHANNEL TONE RECEIVER BCR-8
FOR USE WITH BCT-7 TRANSMITTER See Below
REG. $30.95 19.95 5 Ke. or 7 Ke.

*Your choice of either 5 Kc. or 7 Kc. operation with above Transmitter for operation of either or both units.

NO TUBES! COMPLETELY TRANSISTORIZED!
One of the finest, most reliable, most sensitive precision units you can buy. Features a unique sidetoned circuitry that offers interference immunity. Uses the popular 5K super sensitive relay. Has rugged, metal case and built-in battery holder. Only 6½ ounces. Simple to install. Simple to use. Wiring sensitivity, installation instructions and diagram booklet included. Fully factory assembled and tested.

Order Two Receivers & Save An Extra $5.00
Reg. $79.90. Get Both (Mix'em or Match'em) For Only 34.90

FREE $7.95 COMPOUND ESCAPEMENT IF YOU ORDER BOTH Transmitter and Either Receiver
These Babcock units when used together, make a terrific R/C team. If multi control is desired using one Receiver, you will need a Compound Escapement. We will give you one of the finest made . . . the Babcock Mark II Super Compound Escapement ABSOLUTELY FREE if you purchase the above Receiver and Transmitter together. $34.90.
Limited Quantity! Rush your Order!

WET CELL STORAGE BATTERIES
High capacity, long life. The finest made for R/C use.

2V-3A 1.39	2V-8A 2.75
2V-6A 2.29	W/CASE 2.75
2V-12A 3.75	4V-6A 3.29
Baby Wet 4 V 1.5A	1.45

R/C Battery CHARGERS ASSEMBLED
ESSCO UNIVERSAL 6.95
2 Volt 4.95 Reg. $5.95
2-6 V. 6.95 Reg. $7.95

	REG.	SALE
4000 Ohm Sigma Relay. Sale	2.95	1.69
Little Jewel 5000 Ohm Relay		2.75
88st Palladium Contact Relay		3.75
GEM 5000 Ohm Relay	4.25	4.95
Relay	5.95	3.95
Self. Neut. "Amtron" Escap.	2.98	1.95
Dean Reed Banh — G Reed		33.95
6 or 8 Reed	ea.	34.95
Multi-Pin Plug & Socket Sets.		.30
2 or 3 Prong		.50
4, 5 or 6 Pin 50 7 or 9 Pin		.75
R/C Plugs or Jacks. Std.	ea.	.25
R/C Telescoping Antenna	2.00	1.75

AIR-SEA RESCUE BOAT REG. $12.95 6.95
Terrific R/C boat model that you buy at almost half price. 30" overall length, 8" beam. Easy to assemble balsa hull structure with mahogany planking. For .08 to .19 eng. (or 2 elec. motors).

5.95 Famous "Weller" SOLDERING GUN
Standard professional soldering gun that gives quicker heat. Handsome hi-impact housing.

Use Handy AHC Order Blank on Next Page

Send Order To: America's Hobby Center, Inc., 146 West 22nd St., New York 11, N. Y.

ORDER-BY-MAIL FROM "AHC" . . . THE HOBBYIST'S SUPERMARKET FOR SUPER

SAVINGS

YOUR "ONE STOP" SHOPPING CENTER FOR ALL YOUR HOBBY NEEDS

COMPLETE FLYING OUTFITS

FREE BONUS OFFER

Free of extra cost with every plane and engine.

Buy your engine and plane from us at the same time and get all your accessories free!

STANDARD MODEL ONLY
Correct Size Finished Propeller — Engine Handbook — 18" Insulated Ignition Wire — Insignias — Giant Book on Construction — How to Build and Fly Them — Cement — Sandpaper — Metal Bellcrank with Bolt, Nut and Washer — Elevator Horn — Elevator Hinges — Lead-in Wire — Push-Rod Wire - U-C Handle - Control Lines - Ownership Decal

STANDARD MODEL ONLY

NOTE: You may substitute any plane or engine of equal value for any plane or engine included in these offers. Choose from the listings in the first AHC ad.

2 PLANE OUTFIT

BIG $10 flying outfit FOR ONLY 5.99

Believe it or not! 2 COMPLETE PLANES Make and fly BOTH these 18" profile models

PLUS

PLUS ACCESSORIES AND BONUS EXTRAS

With Cub .049 $7.39

SALE

	REG.	SALE
Scale Team Racer 2¾" Plastic Pilot	.75	.39
2" Race Car Wheels (4) ½" wide	1.50	.99
Electric Outfit, Motors 3-6V., powers model boats up to 24"	2.95	1.99
Spirit of St. Louis, ½A U-Control, 18"	2.95	1.95
Model Builder's Alum. Block Plane	.80	.29
Electric Motor, U.S. made, 1½"	1.98	.69
Modeler's Knife Set (6 Pc.)	1.79	.98
Kellett Autogiro, ½A U-Control, 18"	1.95	1.39
Model Builder's Saw (for wood & metal)	.60	.39
Hobbyist's Screwdriver Set (6)	2.25	1.49
Rev-Up Lubricant (adds RPM's to Eng.)	.50	.29
"Air Racer" ½A U-Control model, 18"	3.59	1.95
Fox Glo Plug Wrench	.60	.39
"Sky Mate" - ½A U-Control model	2.95	1.95
"Apprentice" U-Control Trainer, 34"	3.25	1.98
U-Control Wire (.020-100 Ft.)	.60	.39
Modeler's Carving Knives (12 asstd.)	1.98	1.49
"Firebird" Race Car (18") ½A Eng.	1.89	1.39
B&M .15 Diesel Engine	13.95	7.95
Set of 12 Hobbyist's Files in Case		2.50
Midget Elect. Motor 1½-3V. Imported		.39
Engine Muffler (A-B-C) cuts noise	2.95	1.69
Shpwall Tissue (24 x 36) 10 Sheets	1.00	.49
Ignition Spark Coils with bi tension wire clip	2.00	.98

IMPORTED MODELS

SA-16 Albatross 52" (2) .19-.35	25.95	19.95
Beech Bonanza 36" .19 to .35	10.00	7.95
F-8-F Bearcat 36" .29 to .35	10.00	7.95
B-29 Boeing 48½" (4) .09 to .15	29.95	19.95
B-29 Boeing 84¼" (4) .19 to .29	39.50	27.95
F-4U Corsair 31" .29 to .35	10.00	7.95
C-47 Douglas 48" (2) .15-.19	34.50	19.95
FW190 Focke Wulf 36" .29-.35	10.00	7.95
ME109 Messerschit, 36" .29-.35	10.00	7.95
F-51 Mustang 36" .29 to .35	10.00	7.95
L-17 Navion 33" .19 to .29	10.00	7.95

WEN MAC .049 ENGINE

SPECIAL OFFER $3.95 VALUE 2.49 LIMITED QUANTITY

21" Chris-Craft Cobra Speedboat

With Free Elec. Motor

Operating Speed. boat. Plastic (kit) 16" L. 8½" beam. Authentic Scale.

1.49 REG. 2.99

BIG $10. VALUE

NOW ONLY $7.50

Take your choice of one of these 10 basic U-Control models. Each is completely prefabricated and easy to assemble and fly!

PLUS ENGINE or Wen O.K. Cub .049 Engine $8.50

.049 ENGINE PLUS ACCESSORIES AND BONUS EXTRAS

FREE FLIGHT OUTFIT

DELUXE $15.00 OUTFIT $8.95

FAMOUS CONTEST MODEL

AMAZON "400" 62" SPAN

PLUS

MEETS F.A.I. and A.M.A. RULES

Thoroughly tested and contest proven! AHC brings you this sensational Free Flight outfit . . . and we're bargain proud of it, too! The "AMAZON 400" is light, rugged and efficient . . . designed to assure it all pre-fabricated . . . with selected balsa and plywood parts and full size thoroughly detailed plans.

NEW & POWERFUL FOX .15 ENG.

& COMPLETE AHC BONUS EXTRAS, P.P. ACCESSORIES, ETC. . . . WORTH MANY $$

COMPLETE JET OUTFIT

DELUXE OUTFIT ONLY $2.95

The hottest Jet Flying Outfit you can find! Scale models have realistic cockpit fuselages, etc. — NOT flat profiles! S-2 to assemble, Anyone can fly!

CHOOSE ONE PLANE

PLUS

JET ENGINE & SUPPLY OF SOLID FUEL CHARGES! 100% Complete Outfit.

PLUS Catapult Launcher, All Accessories & Finishing Items.

SPACE AGE MODELS & MISSILES

Aerobee-Hi 6.45

Extra Motors 3 for $1.50

Realistic operating rocket with vinyl nose cone and positive parachute recovery system. 14" long. Absolutely safe. Comes with 3 motors and launcher rail.

ALPHA-1 MISSILE & LAUNCHER 2.98

ADDITIONAL PURS. — 25c

Plastic Model—with all auxiliary equip. Ready for many flights. Safe. Travels over 100 ft.

INTERCEPTOR Mark III 2.49

Complete with Remote Launching Pad Extra Fuel Pellets - 89c

Aurora's popular Interceptor missile. Absolutely safe. Ready to operate. You get rocket, motor & fuel pellets for about 60 flights.

We have a limited quantity of this famous eng. on sale!

Reg. 15.95 11.95

Glo Plugs

Reg. 65c 39¢ 3 for $1.00

An AHC Super Value! specify Long or Short Threads

DECAL BARGAIN

Worth twice the price you get 1 (5½") AMA Class A, Aljeb; 4 U.S. Ar... Pictures; 3 Sheets Solid Co... or; 1 Sheet Checkered; 12 Assted. Nos. & Alphs; 1 Identification Set; Many, Many Bonus Items & Tips & Hints on Use of Decals.

Bargain ——— $1.00

Flying Accessory OUTFIT

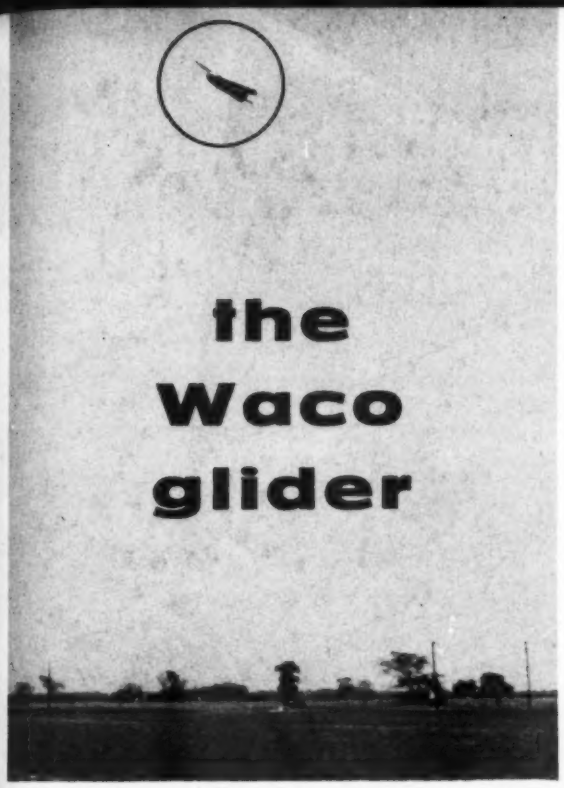
For .19, .29, .35 Eng.

REG. $3.75 2.75

Includes: (1) Spool .015 or .018/20 Nylon Braid Con. Cable; (1) Pressure Cable; (1) Fuel Clunk; (1) Pressure Fuel Tubing; (1) Fuel Filler Nipple; (1) Fuel Valve; (1) Fuel Shut-off Valve; (1) Fuel Line Connector; (1) Fuel Line Connector; (1) Fuel Line Connector

the Waco glider

A splendid lifelike model of the famous CG-4A troop glider. Easier to build than many a free flight, it makes stable flier.



Banking off the top of the tow—the falling line is invisible in the picture—the CG-4A racks up one of its many rewarding hops.

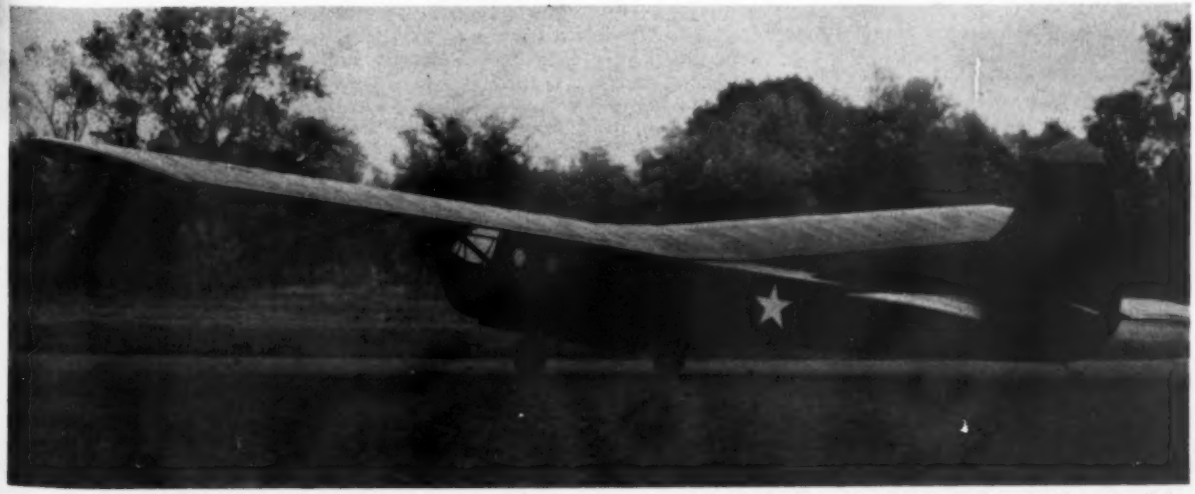
Holding the ¾ in. scale glider for a tow launch, author shows best technique for level hold and easy release. Has autorudder.

▶ "Swooping in at night, completely surprising the unsuspecting defenders, our glider troops by morning had disrupted the enemy beach defenses to such an extent that our following seaborne invasion practically walked ashore." This was the story made possible by the role of the Waco CG-4A in the Allied invasion of Sicily on July 9, 1943.

First used by the Germans in the lowlands of Holland and in the occupation of Crete, early glider operations proved to be none too successful. Due to the staggeringly high number of casualties sustained in mountainside crashes and landing mishaps, our military leaders questioned the practicability of glider borne troops in battle.

The Allies solved this problem by building their gliders so rugged and so tough that they could be literall wrapped around tress and run into buildings with little or no damage to either men or material. The most outstanding of these rugged gliders, which participated in the airborne invasions of Sicily and Europe, was the CG-4A, designed by the Waco Aircraft Company, Troy, Ohio, and built by sixteen different manufacturers during World War II. Because of its steel tube construction and its ingenious three section fuselage, our troops were rarely killed and our material rarely damaged even in the roughest of landings.

The CG-4A had a wingspan of 83 ft. 8 in. and a length of 48 ft. 8 in. It weighed 4700 lbs. empty and was capable of carrying a cargo load up to (*Continued on next page*)



Not even an unsightly model engine cylinder mars the realistic appearance of the little Waco. In 1942-43, 13,909 CG-4A's were built.

For best results and minimum damage in rough terrain, the glider can be flown with struts and gear removed. Real tow plane, C-47.

WACO GLIDER —*Continued*

5000 lbs. While it normally carried 13 fully packed troops, plus pilot and co-pilot, it could also carry a ¼ ton truck with six men plus equipment, or a 77mm howitzer and gun crew plus ammunition. It has a maximum towing speed of 150 mph, glide ratio 15-1, and landing speed 40 mph.

For service and training work a permanently attached shock-absorbing landing gear was used, but for battle use a droppable take off gear and wooden landing skids were used, enabling better landings to be made on rough terrain. A total of 13,909 of these "boxcars" were built and delivered during the years 1942 and 1943.

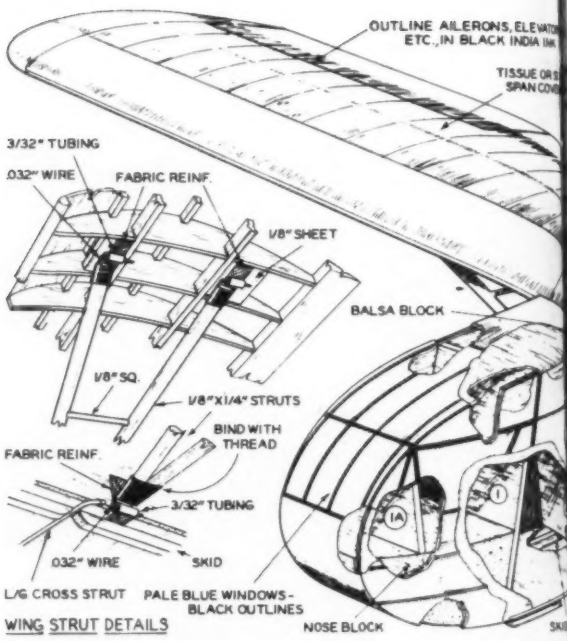
Our ship is built to a scale of ¾"=1' giving it a span of approximately 52 inches. It is equipped with removable landing gear and wing struts which are used for display purposes only and are not recommended for flying purposes. The flying weight is about 15 oz.

Fuselage: Cut two sides from medium or hard 1/16" sheet balsa. After reinforcing the front portions from the rear of bulkhead 4 forward with soft 1/16" sheet, mark off the bulkhead locations. Now cement the ¼" square balsa. Beginning with bulkhead 1 join the two sides to-fuselage sides. Next, cut all bulkheads from medium sheet balsa. Beginning with bulkhead 1 join the tow sides together. Now add bulkheads 2, 3 and 4 and allow the assembly to dry before proceeding. When dry add bulkheads 5, 6, 7 and 8 in that sequence.

Cut the 1½" x 3" x 3⅜" nose block to shape from the outline shown on the plan and cement it in place between the fuselage sides. The sides curve quite sharply at this point so it may be necessary to pull the sides together with rubber bands or a large C-clamp or vise. Now add the ¾" x ¾" x 6" towhook mounting block at the bottom of the fuselage between bulkheads 2 and 4. A ¾" x 1" x 3⅜" block is cemented at the top behind bulkhead 2. The rear side is beveled at a 45° angle so the wing will slide off in case of a crash. Cement bulkhead 1A in place and then cover the top forward section of the fuselage with 1/16" sheet, running the grain in a spanwise direction.

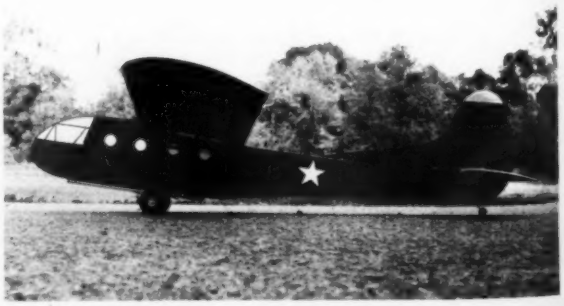
If an auto-rudder is to be used it will be necessary to run a tube of some sort from the rudder down to the tow-hooks to carry the rudder release cable. Metal, paper, or a built-up wood tube may be used. The exact location is shown on the plan. Bend the tail wheel strut from 1/16" wire and cement and bind it securely to bulkhead 8.

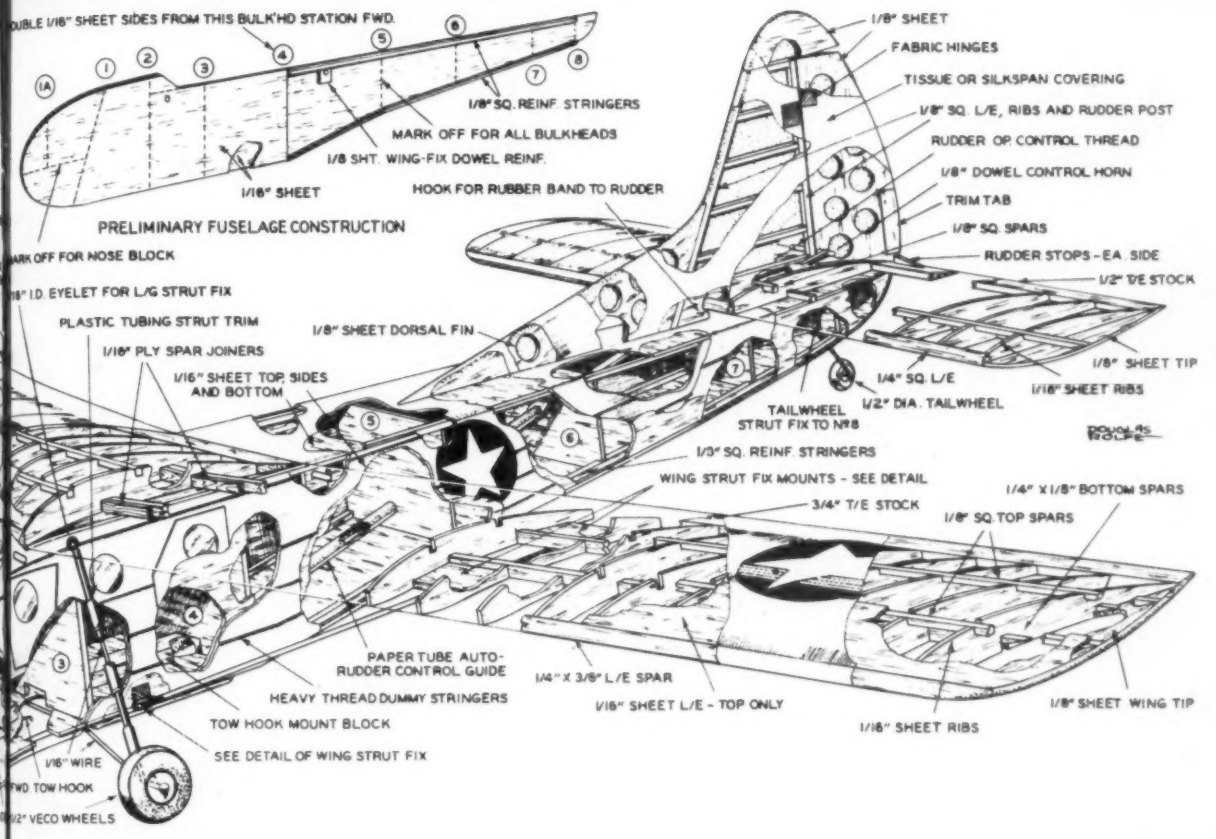
Cover the remaining top and bottom of the fuselage with 1/16" sheet, running the grain spanwise. Sand the fuselage thoroughly and put a small radius on all corners except those under the wing and stabilizer. The thread-simulated stringers can now be cemented in place. Cover the fuselage with tissue or (*Continued on page* 38)

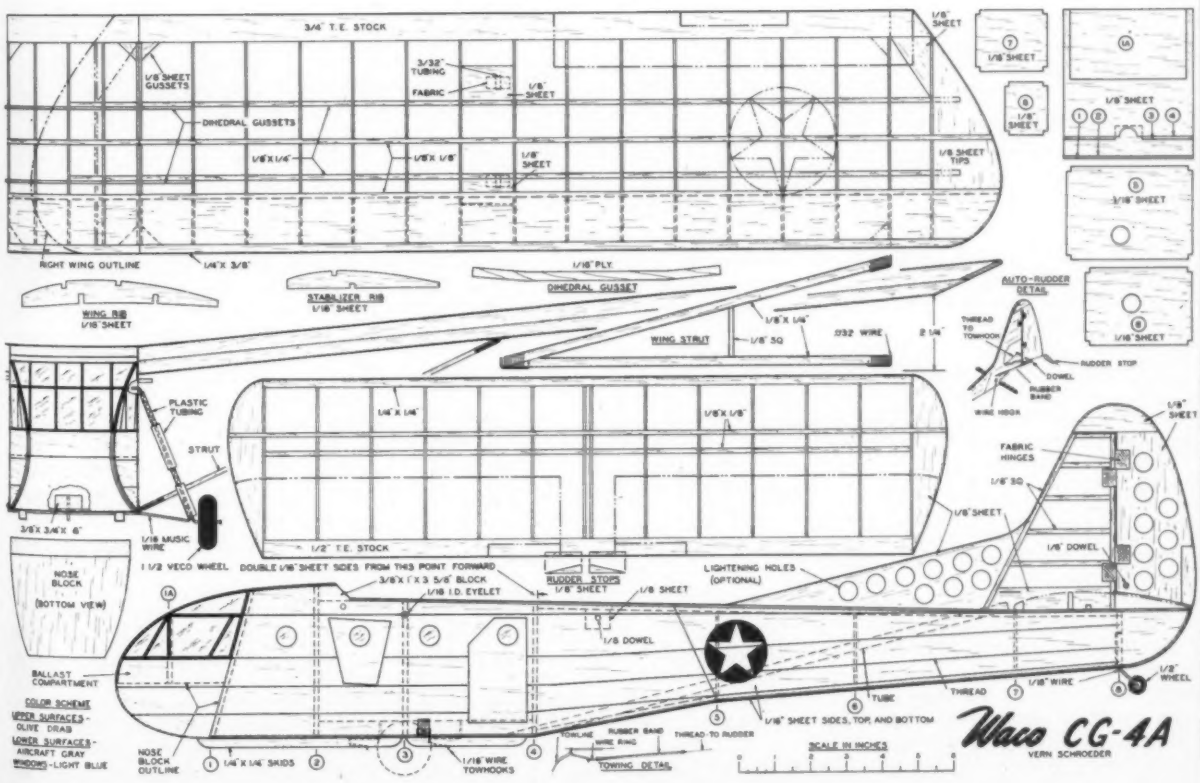


Good looking but easy to build. Fuselage sides are sheet balsa, with thread cemented on for stringers. Wing, stab, rectangular.

Compare this picture with the cutaway drawing during construction. Windows are painted white. Stars were the insignia of the period.




DOUBLE 1/16" SHEET SIDES FROM THIS BULK'HD STATION FWD.
1/8" SQ. REINF. STRINGERS
MARK OFF FOR ALL BULKHEADS
1/8 SHT. WING-FIX DOWEL REINF.
1/16" SHEET
PRELIMINARY FUSELAGE CONSTRUCTION
MARK OFF FOR NOSE BLOCK
1/8" I.D. EYELET FOR L/G STRUT FIX
PLASTIC TUBING STRUT TRIM
1/16" PLY SPAR JOINERS
1/16" SHEET TOP, SIDES AND BOTTOM
1/8" SHEET DORSAL FIN
HOOK FOR RUBBER BAND TO RUDDER
1/8" SHEET
FABRIC HINGES
TISSUE OR SILKSPAN COVERING
1/8" SQ. L/E, RIBS AND RUDDER POST
RUDDER OP. CONTROL THREAD
1/8" DOWEL CONTROL HORN
TRIM TAB
1/8" SQ. SPARS
RUDDER STOPS - EA. SIDE
1/2" T/E STOCK
1/8" SHEET TIP
1/16" SHEET RIBS
1/4" SQ. L/E
1/2" DIA. TAILWHEEL
TAILWHEEL STRUT FIX TO N°8
Douglas WOLFE
1/32" SQ. REINF. STRINGERS
WING STRUT FIX MOUNTS - SEE DETAIL
3/4" T/E STOCK
1/4" X 1/8" BOTTOM SPARS
1/8" SQ. TOP SPARS
PAPER TUBE AUTO-RUDDER CONTROL GUIDE
1/4" X 3/8" L/E SPAR
HEAVY THREAD DUMMY STRINGERS
1/16" SHEET L/E - TOP ONLY
1/8" SHEET WING TIP
TOW HOOK MOUNT BLOCK
1/16" SHEET RIBS
SEE DETAIL OF WING STRUT FIX
1/16" WIRE
FWD. TOW HOOK
SKID
1/2" VECO WHEELS



FULL SIZE PLANS AVAILABLE. SEE PAGE 62.

Proportional Engine Control

Fitting, right, slips over belt, with one knob being used for the motor control, the other for elevator control. The flier's choice.

The exact engine power needed at all times, without electrical equipment, using two Mono-Line Stunt Master control units.

This Cox .049-powered job is flown as carrier-type model using system described in the article. Flies on 40 ft. of .014 lines.

Fox .19-powered ABC Trainer, with control units mounted on profile fuselage for simplicity. Upper unit connects tank bellcrank.

► Here is a system of control flying that is hard to beat. Proportional engine control and elevator control at all times without the aid of any electrical equipment! All that is required for this "magic" is two Mono-Line Stunt-Master control units, two ball-bearing handles mounted on a metal base, and a slide restrictor for the exhaust stack of your particular engine.

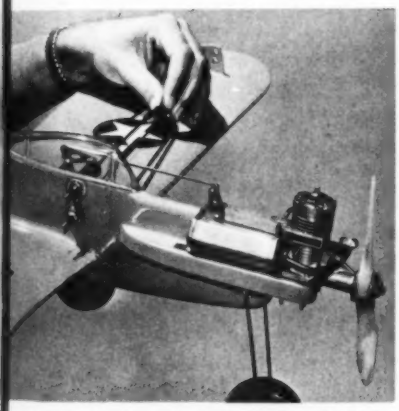
The "handle" is slipped over the flier's belt which leaves both hands free to operate the two controls. One side of the handle is used for the elevator control and the other for the engine speed control. It is a matter of personal preference which the flier uses. On these test models the right side of the handle was used for the elevator control as this was the hand the author normally used for regular Mono-Line flying. The engine speed is achieved by pulling the actuator (on handle) all the way back for wide open, and as you move the actuator forward the speed will become proportionally slower—until full retard position is reached (far end of the handle). The response is instantaneous, both for engine speed and elevator control!

But what advantage does this method have over other systems already in use? First of all, you have complete control of both elevator and engine speed—whether the line(s) are taut or loose. In other words, all the advantages of Mono-Line with complete engine control as a bonus! Most engine-control systems are only efficient when the flying lines are tight and when the lines go slack, they lose not only engine control but elevator control as well. Even with an electrical set-up for the engine control, slack lines still result in no elevator control. The flier has to run like mad to regain line tension and often the plane crashes before this can be accomplished. Extra skill and effort is required of the flier when these conditions arise. But if these problems can be eliminated by a new system, would it not be an advantage to use it?

Nearly all engine-control systems work fine in calm weather. But what about windy contest conditions? Let's give a practical example how this "multi-Mono-Line" system works under this handicap. Imagine you are flying a .29-powered scale job and as your plane comes into the wind (under low power) the lines bow back. But the engine speed will remain the same. Also, the elevator stays in the same position. If the plane comes in at you too rapidly, just give her a little more power to put her out on the end of the lines again. No running backwards is necessary as there is nothing to be gained by so doing. Weight in the outboard wingtip is still a *must*. Don't be too stingy with it either.

Noted for speed and stunt flying on Mono-Line, the author with two throttle-control test ships.

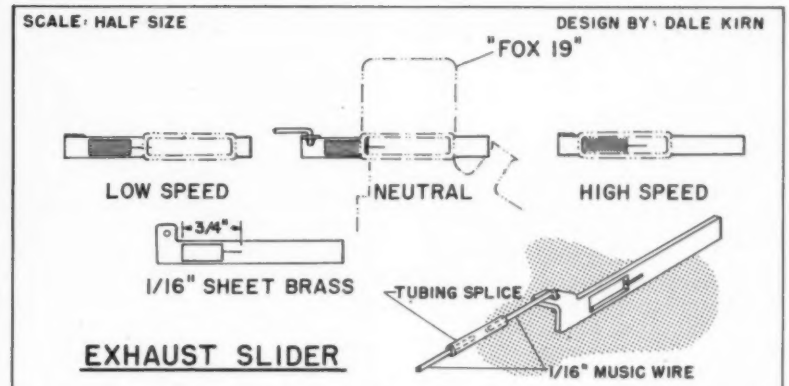
by DALE KIRN

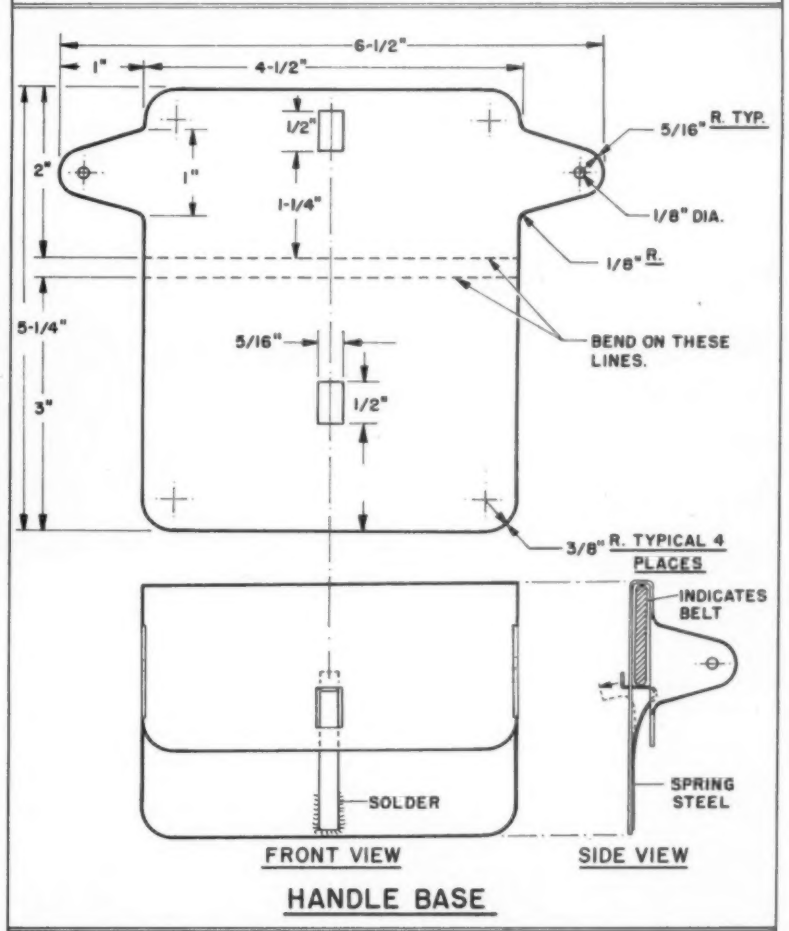


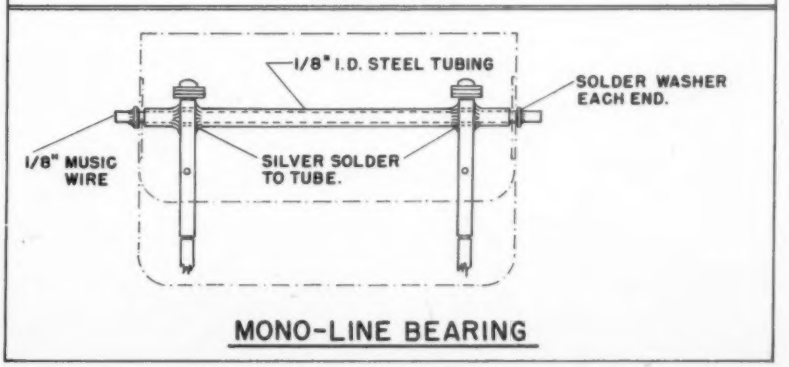
Close-up showing exhaust restrictor in the high-speed position—compare with drawing on right.

Think what this means for carrier deck fliers! When you take off the deck, you are located in exactly the right position for a successful landing—and there is no reason for you to wander from that position. In your speed runs you have another advantage over your competitors. This shows up on your slow run. By having complete proportional engine control you can select exactly the right engine speed to keep your particular model in forward motion, and can increase or decrease power as you need to. For your deck landing, you start about a lap or two ahead of time getting your ship into a stalled flying attitude and then slowly decrease your power as you approach the deck. When you are just about there, cut the power. Although this is not too difficult to do, it will require some practice to attain the proper co-ordination.

If you (*Continued on page 50*)







Early Birds

by DOUGLAS ROLFE

Number 8

TWILIGHT OF THE TRIPLANE

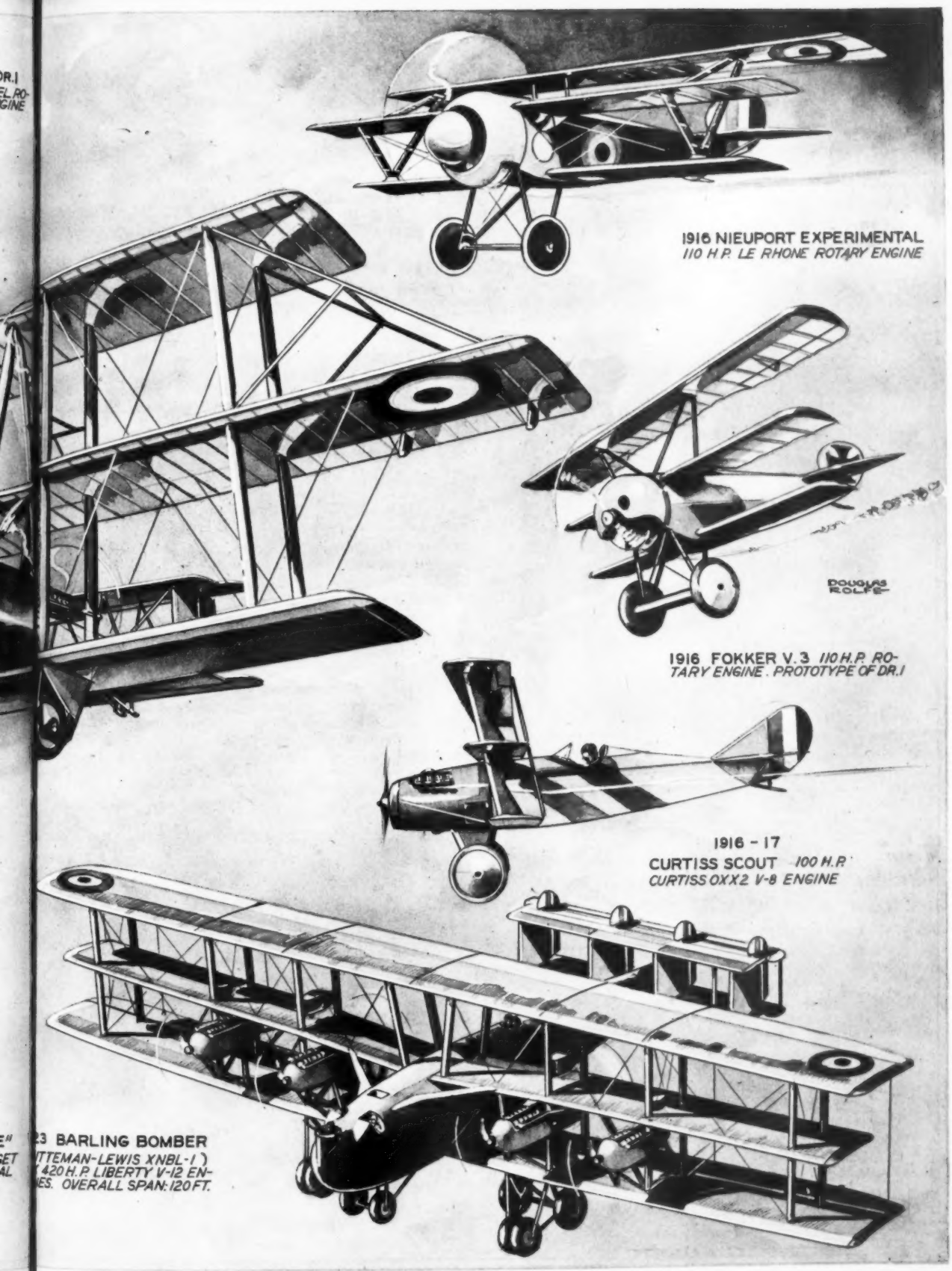
The triplane configuration appeared early in the development of powered flight. It reached its peak during World War 1 and it disappeared as a type shortly thereafter.

During its halcyon days, the triplane was considered seriously by such top aircraft companies as Curtiss and Boeing in this country and by Caproni, Fokker, Nieuport, Sopwith (now Hawker) and Voisin, abroad. Curious by today's standards the fact remains that two of the top WW. 1 fighters were of triplane design—the Fokker Dr. 1 and Sopwith Tripe.

The gigantic Tarrant Tabor was intended as a super-bomber—target Berlin. During the first take-off attempt the initial run was made on the lower four motors. When the upper engines were gunned, it toppled onto its nose, killing both pilot and co-pilot. The design was not pursued.

The almost equally large Barling Bomber did fly but due to various structural defects was abandoned in 1925. Had the Tabor been fitted with the Barling type landing gear it too might have flown successfully.

1918 FOKKER DR.I
110 H.P. OBERURSEL ROTARY RADIAL ENGINE
1919 TARRANT "TABOR" SIX 500 H.P. NAPIER LION ENGINES - 2 SETS IN TANDEM WITH BOTH PUSHER AND TRACTOR PROPS. OVERALL SPAN: 131 FT. LENGTH: 73 FT. HEIGHT: 37 FT. 3 IN.
5
N702
1916 SOPWITH "TRIPE"
110 AND/OR 130 H.P. CLERGET ROTARY AIR-COOLED RADIAL



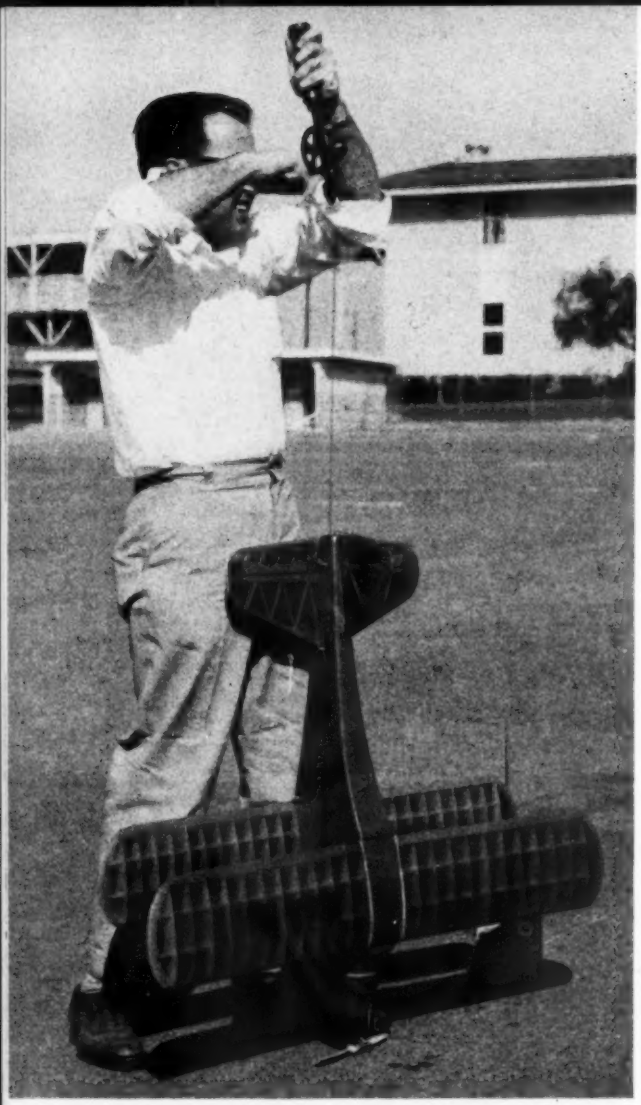
1916 NIEUPORT EXPERIMENTAL
110 H.P. LE RHONE ROTARY ENGINE

DOUGLAS ROLFE

1916 FOKKER V.3 *110 H.P. ROTARY ENGINE. PROTOTYPE OF DR.I*

1916 - 17
CURTISS SCOUT *100 H.P.*
CURTISS OXX2 V-8 ENGINE

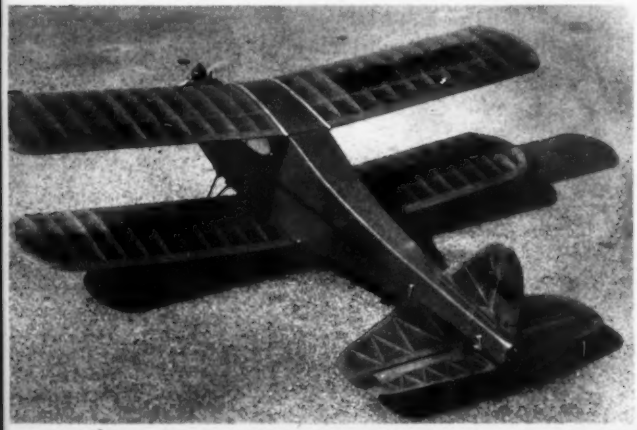
23 BARLING BOMBER
TTEMAN-LEWIS XNBL-1)
420 H.P. LIBERTY V-12 EN-
ES. OVERALL SPAN: 120 FT.



Plenty of turns on the rubber is essential for "intermediate" flying with Vari-comps. Operating speed remains suitably constant.

If you can't beat rudder-only jobs by 50 points with this truly great ship, you are not a hot pilot! Nor do you need four servos for performing sport aerobatics.

Lighter loadings in smaller size result in biplane configuration. The aerodynamically balanced surfaces minimize escapement loads.



Any long-suffering RCer who knows his onions will quickly recognize the functional, practical features. Well over 200 test hops were made.

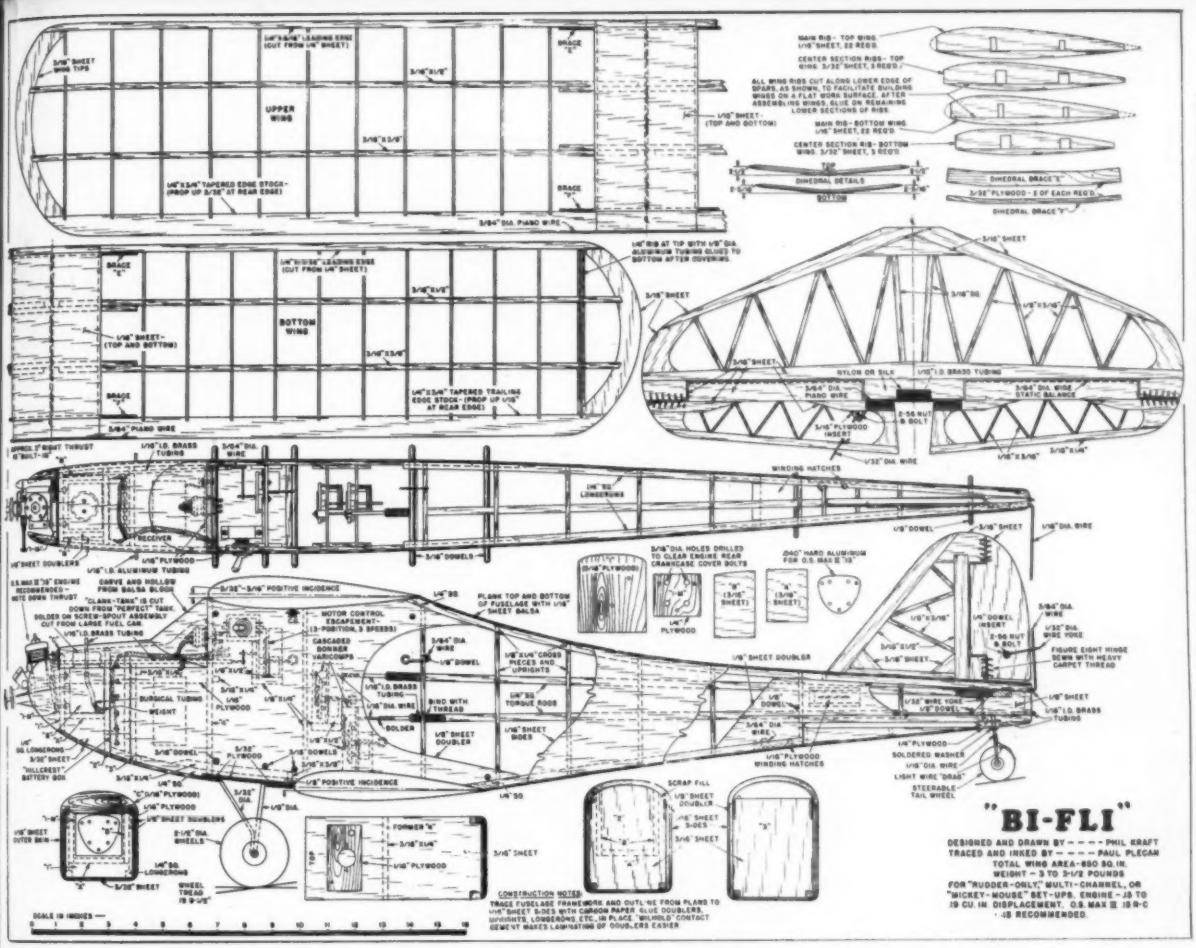
BI-FLI

by PHIL KRAFT

► Full-scale biplanes are no longer produced except for special purpose types such as Grumman's new crop duster. Their relatively low efficiency due to the higher induced drag of two wings has relegated this oldest aircraft type to rapid extinction. However, for our purposes, the lower lift-drag ratio is not a disadvantage and, from the theoretical standpoint, the biplane seems to be the most logical approach to RC stunt. There is little question that the biplane is the most maneuverable type of aircraft. Virtually all of the full scale airplanes used in stunt competition were biplanes.

The reason for the biplane's inherently superior maneuverability lies primarily in its shorter moments and concentration of mass and area which reduce the effects of inertia. Thus, the biplane can respond more quickly and smoothly to control movements. Besides maneuverability, the bi-

For excellent ground handling, plus inverted flight, outsides, or eights, Bi-Fli is small package. Fractional cost of multi trucks.

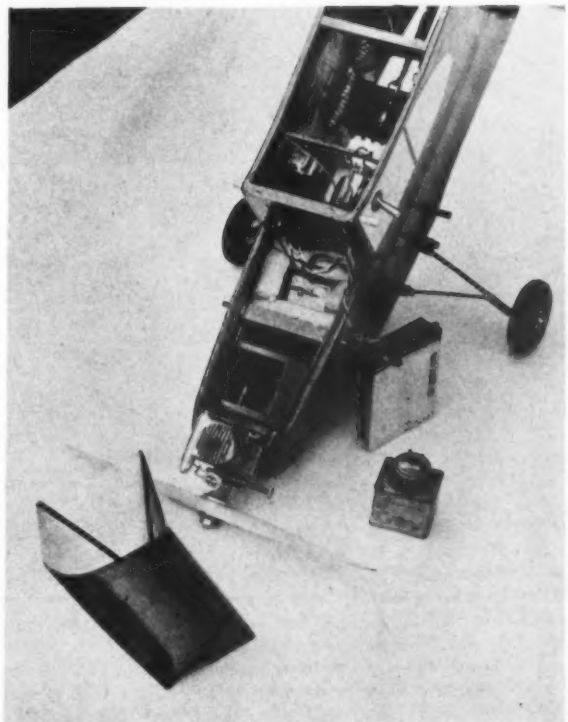

"BI-FLI"
DESIGNED AND DRAWN BY - - - - PHIL KRAFT
TRACED AND INKED BY - - - - PAUL PLECAN
TOTAL WING AREA-650 SQ.IN.
WEIGHT - 3 TO 3-1/2 POUNDS
FOR "RUDDER-ONLY," MULTI-CHANNEL, OR "MICKEY-MOUSE" SET-UPS. ENGINE - .10 TO .19 CU.IN. DISPLACEMENT. O.S. MAX II .19 R-C .45 RECOMMENDED.
CONSTRUCTION NOTES:
SCALE IN INCHES

FULL SIZE PLANS AVAILABLE. SEE PAGE 62.

plane offers greatly increased stall resistance. This is because the rear wing is generally set at a slightly lower angle of attack than the front. In a stall, the rear wing retains its lift longer than the front and since it lies aft of the center of gravity the nose of the airplane will drop to regain flying speed without the abrupt loss of lift and sharp dive associated with monoplanes. Ground handling, take-off, and landing characteristics are also excellent. From the model standpoint, the reduced overall dimensions of the biplane provide a stronger, lighter aircraft which is easier to transport.

Theory and practice do not always coincide, but the apparent advantages of the biplane layout prompted the design of the Bi-Fli. A great deal of thought went into the design in an attempt to produce a maneuverable yet stable, smooth-flying model suitable for any type of control from rudder-only to multi-channel equipment. For flight smoothness, a moderate wing aspect ratio (6-1) and fairly long tail moment with plenty of stabilizer area has been used. Logically, the two wings should be the same size, but for appearance sake the lower wing was designed 10% smaller. While free-flight experience has taught that an unduly scientific approach to airfoil selection is rather senseless, the NACA 23015 section was selected because its characteristics seemed ideal as to center of pressure travel, etc. More important, the section looked "right." Negative stagger was seriously considered, but the more conventional positive stagger was decided upon to simplify landing gear installation.

The first Bi-Fli weighed only 37 ounces and was powered with the K&B .09. The ship was a beautiful flier, living up to all expectations, but it was a bit slow due to the very light wing loading. (*Continued on page 57*)

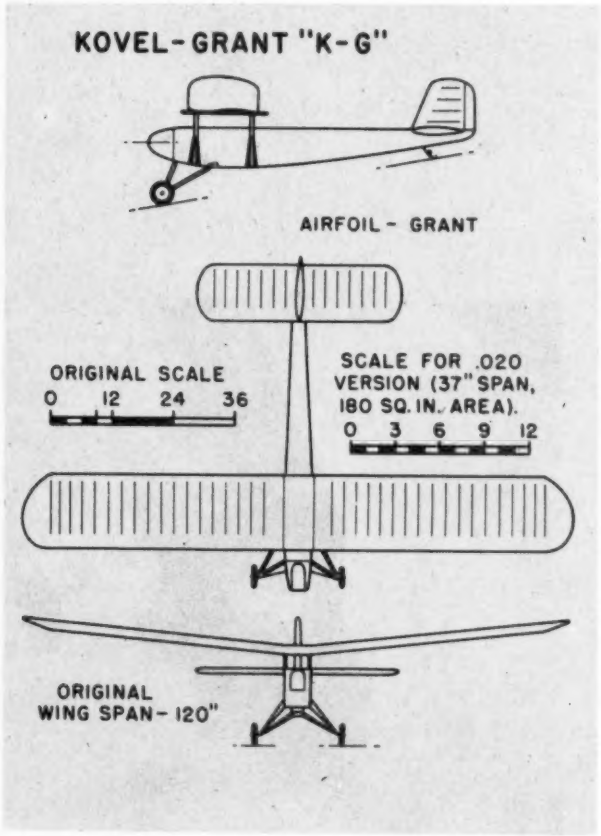


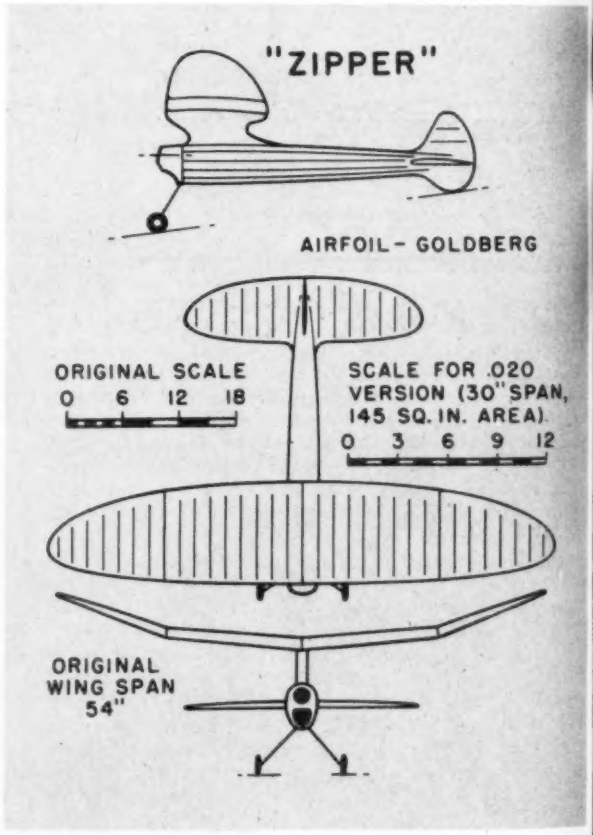
Nose hatch removed to show receiver (in place), battery box, tank. Motor-control escapement, cabin front; Vari-comps in mid-cabin.

Three winners of the .02 powered replicas: L to R—Jim Rhoades, KG-2, 3rd; Barney Taft, Interceptor, 1st; Terry Thorkildson, Half Wild Goose, 2nd. Those trophies not half bad idea, either.

they turned back

Ancient automobiles and antique aircraft are fascinating subjects—why not past greats in model airplane designs? Have we progressed? Scale 'em, fly 'em and see.

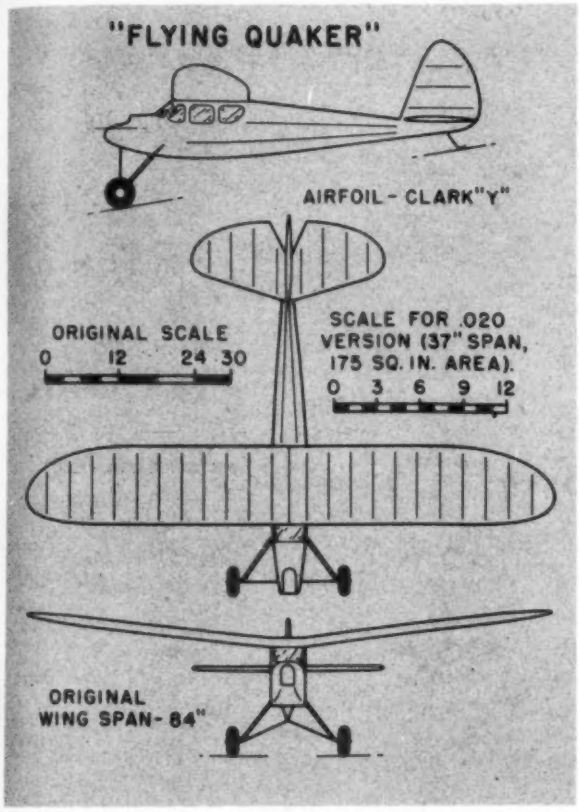

KOVEL-GRANT "K-G"
AIRFOIL - GRANT
ORIGINAL SCALE
0 12 24 36
SCALE FOR .020 VERSION (37" SPAN, 180 SQ. IN. AREA).
0 3 6 9 12
ORIGINAL WING SPAN - 120"

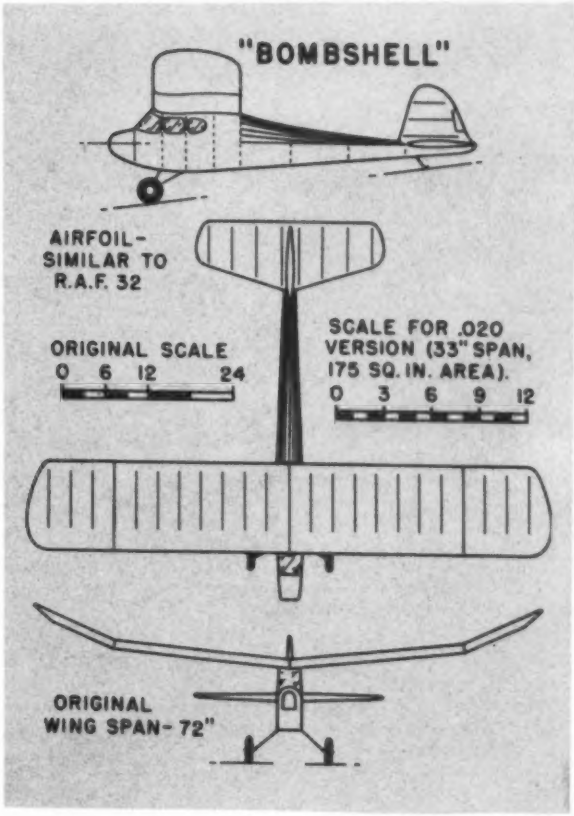


► At most free-flight meets there are always a few "Old Timers" who sooner or later gather in a small group, gaze scornfully at a screaming Ramrod or a floating Spacer and remark, "These modern free flights just don't appeal to me." Or . . . "Remember that black and orange Zipper of mine with the Dennymite in it? Now there was a real airplane. Yeah man, and then there was old Charlie's green-and-yellow Interceptor . . . used to go straight up on an Ohlsson 23!"

When a few of these "coil-and-condenser" boys get together, the reminiscing may go on for hours and hours. Why not have a contest for "Old Timers" was the bright idea of Bob Sugden, so it wasn't much later that a date and site had been set. It was agreed that pre-1950 designs would be used, all powered by .020 engines. All flights to be ROG, with 20-second engine run "a la eye-dropper"—no VTO's allowed!

This contest was a success practically as soon as an-


"FLYING QUAKER"
AIRFOIL - CLARK "Y"
ORIGINAL SCALE
0 12 24 30
SCALE FOR .020 VERSION (37" SPAN, 175 SQ. IN. AREA).
0 3 6 9 12
ORIGINAL WING SPAN - 84"


"BOMBSHELL"
AIRFOIL - SIMILAR TO R.A.F. 32
ORIGINAL SCALE
0 6 12 24
SCALE FOR .020 VERSION (33" SPAN, 175 SQ. IN. AREA).
0 3 6 9 12
ORIGINAL WING SPAN - 72"

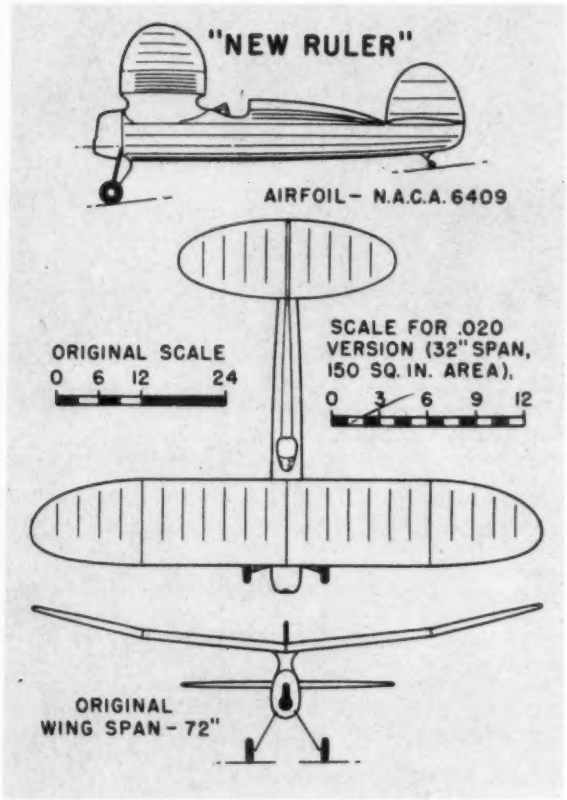
the clock

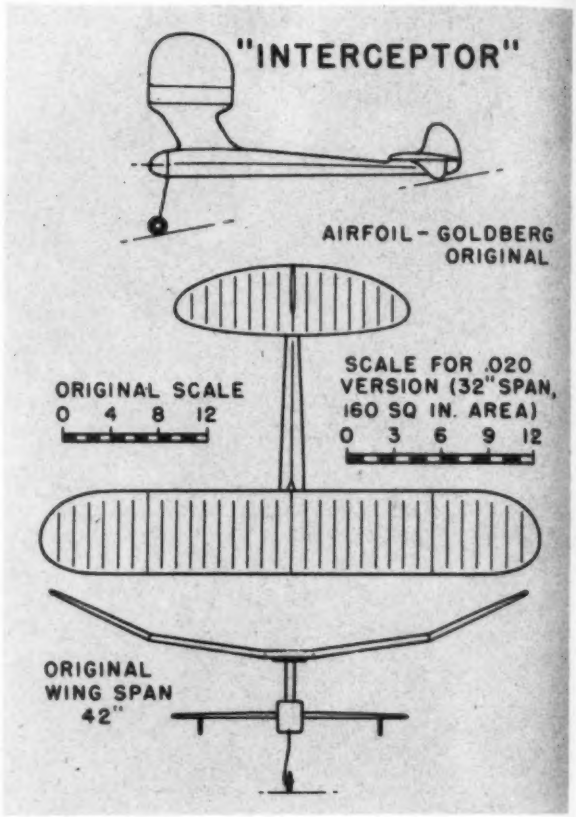
by Barney J. Taft

Buzzard Bombshell, Hogans KG's, Sniffers—you guess 'em! Noel Hess, third from left, top row, nationally noted scale ukie builder, sheepish with that KG! It flew fine. Original was 10 ft.

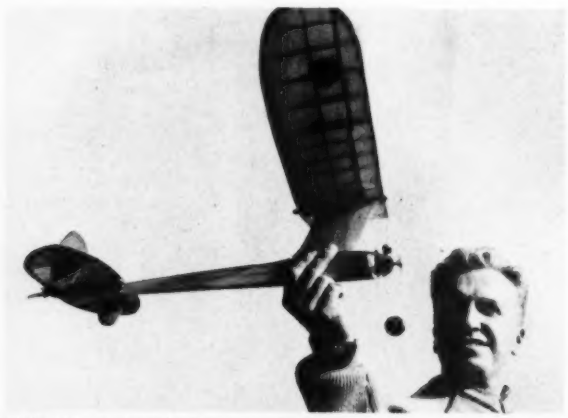
nounced, and both oldsters and youngsters began building everything from K-G's to San De Hogans. Construction was fast and easy, due to the small sizes chosen. Noal Hess' modified K-G had 75 square inches of wing area (about the smallest) and Jay Jackson's Zipper of 170 square inches represented the largest version at the contest.

The morning of the contest took one back many years, and, as the air warmed up, dethermalizers had to be used. A three-minute maximum was set, to avoid long chases. It was a real thrill to see Bob Sugden's Buzzard Bombshell which employed scale construction and had all details. This model eventually won the special trophy for best-built model and was a good flier too. Jimmy Rhoades' K-G was very nice too, but he had trouble getting his flight pattern down pat. One of the hottest fliers on the field was Alvin Graehl's San De Hogan, but when flown at peak rpm's, the ship wound in. (*Continued on next page*)


"NEW RULER"
AIRFOIL- N.A.C.A. 6409
ORIGINAL SCALE
0 6 12 24
SCALE FOR .020 VERSION (32" SPAN, 150 SQ. IN. AREA).
0 3 6 9 12
ORIGINAL WING SPAN - 72"


"INTERCEPTOR"
AIRFOIL - GOLDBERG ORIGINAL
ORIGINAL SCALE
0 4 8 12
SCALE FOR .020 VERSION (32" SPAN, 160 SQ IN. AREA)
0 3 6 9 12
ORIGINAL WING SPAN 42"

How good, really good, was the Zipper? Could the Interceptor take a Ramrod? What



With 165 sq. in. of wing area, Interceptor by Barney Taft snared first-place silver bowl. Original was hottest ship around 1940.

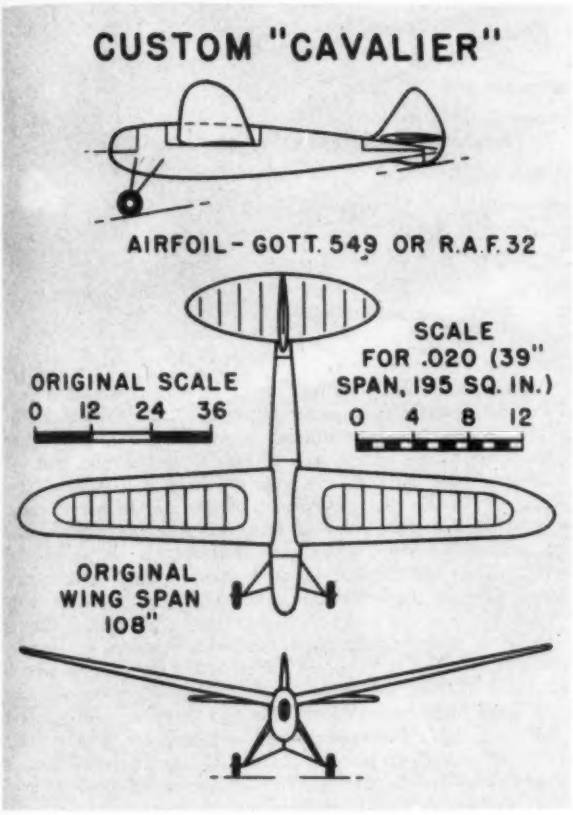
The great Buzzard Bombshell, 44 minutes at prewar Chicago Nats, flown by dozens as club project. Six feet. This, Sugden's copy.

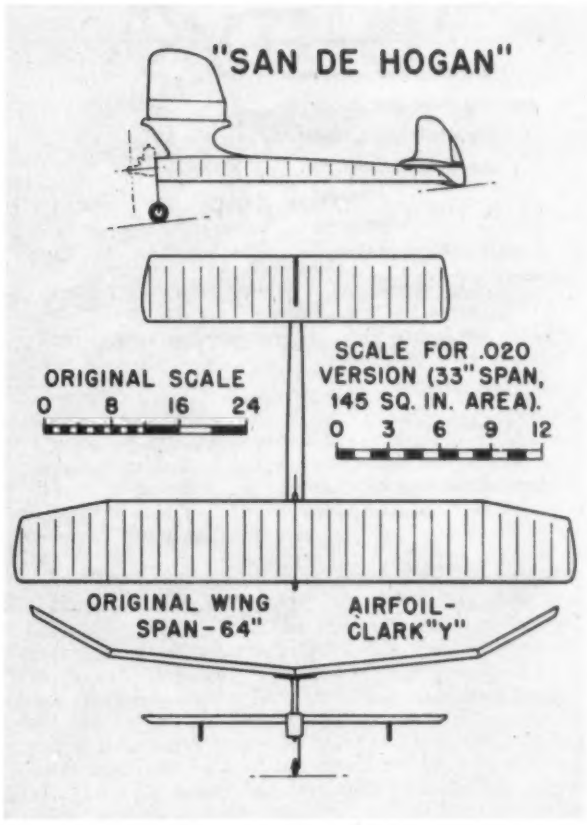
THEY TURNED BACK THE CLOCK . . . *Continued*

Several scaled down Sniffers put in their appearance, but looped all over the sky under full power (too small). And Jay Jackson, who didn't quite finish his Zipper, took the .049 out of his large Sniffer at the last minute and tried the .020 in it. Had some terriffic flights, but was jinxed by a take-off on the highway in the wake of a passing car. The resultant flip from about five feet really "pranged" the model, winning him the best-crackup award.

Terry Thorkildson had a miniature Half Wild Goose that ROG'd a little shakily, but put in three good flights for second place. Barney Taft's blue and orange Interceptor was fairly big and light—165 square inches and two ounces weight. This proved to be the winning combination, taking home the Silver Bowl for the highest three-flight total. Jimmy Rhoades did some fine flying, his touchy KG-2 finally nosing out Sugden's Bombshell for the third-place trophy.

All in all, a wonderful time was had, and we recommend this type of meet to your club if things seem dull some times. In the accompanying three-views, recommen-





about those famed crates of yesteryear? Story of incredible contest in Salt Lake City.

Jimmy Rhoades happy with his small KG. Original, designed by ex-MAN editor Charlie Grant, built by Joe Kovel, tops in 1934-1936.

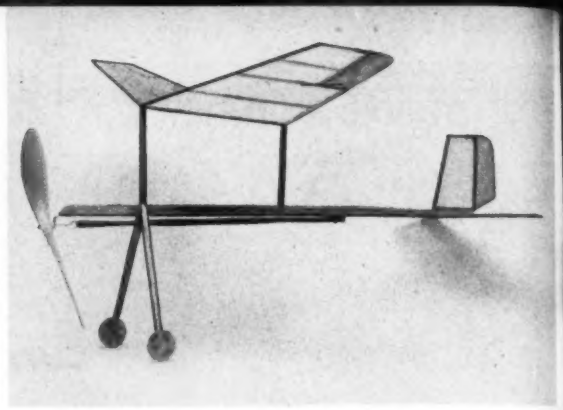
Let's face it men, the Hogan is historical! Alvon Graehl's miniaturized Sandy Hogan. Area drops like mad with scale-down—care!

dations are given for proper sizes of models, based on our results. Note that most of the really "old" jobs, like the Cavalier, Flying Quaker and K-G are best built large (170 to 200 sq. in.) to glide best with their larger wing areas, since their force arrangements do not conform with the accepted "hot" performing jobs. The "small" end of the category is represented by the Zipper and Interceptor at 145 to 160 sq. in.—these are designed for "hot" climbing, and can safely be built small. Just a notch away, San De Hogan and New Ruler at 150 sq. in. seem good.

You will notice that some of the sizes recommended seem just about ½A size. This is because area drops alarmingly the minute you scale something *down*. (For instance, scaling a design down to *one-half* size drops the wing area to *one-quarter* of the original.) If you don't believe it, figure it out for yourself. A secondary consideration would be the potency of the amazing .020 cu. in. Pee-Wee engine. This little gem of a powerplant will do a creditable job with light ½A designs, so to scale down TOO much makes the job tricky to adjust for consistent flying.

"nifty"

by JOHN ZAIC



Workable controls make tiny rubber-powered job a just-great parlor test flier.

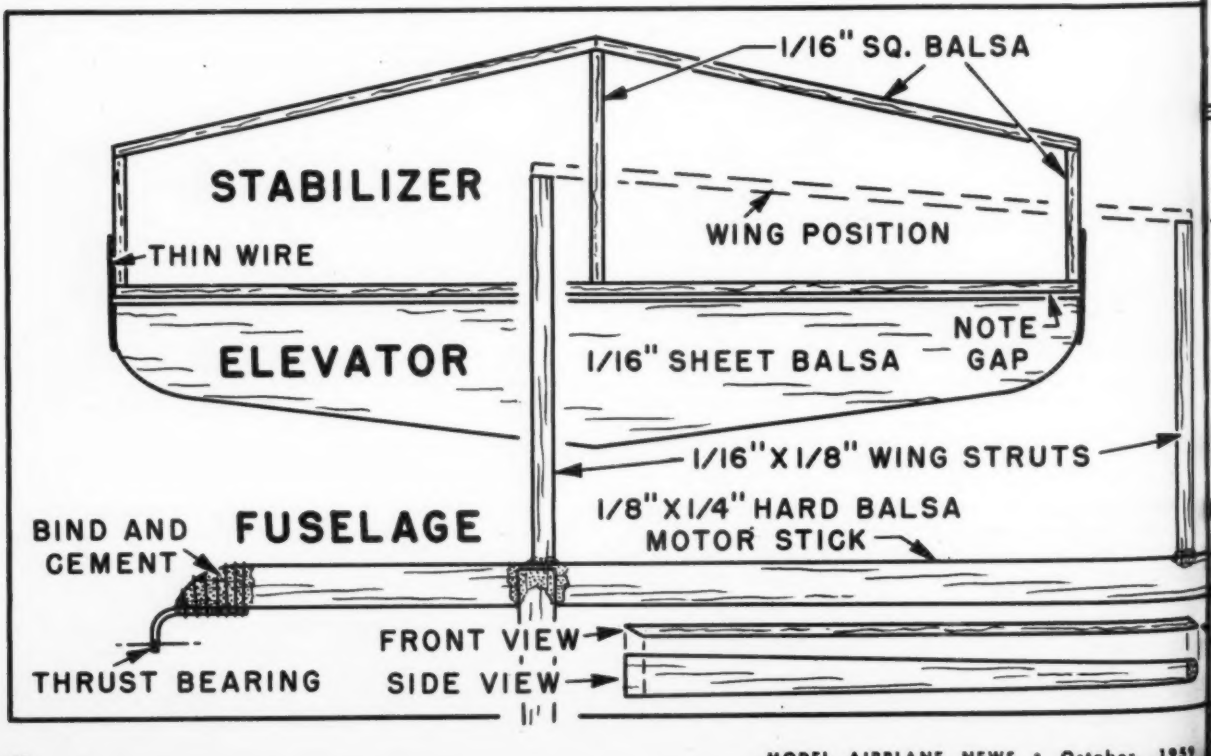
► Here is an unusual flying model that incorporates movable ailerons, elevator and rudder, providing excellent explanation of how a real airplane operates by its controls. Moving the elevator or turning the rudder will make the model climb or turn right or left. Nifty easily can be adjusted to fly in six-foot circles which makes it ideal to fly in the living room! In calm weather it can be flown outdoors.

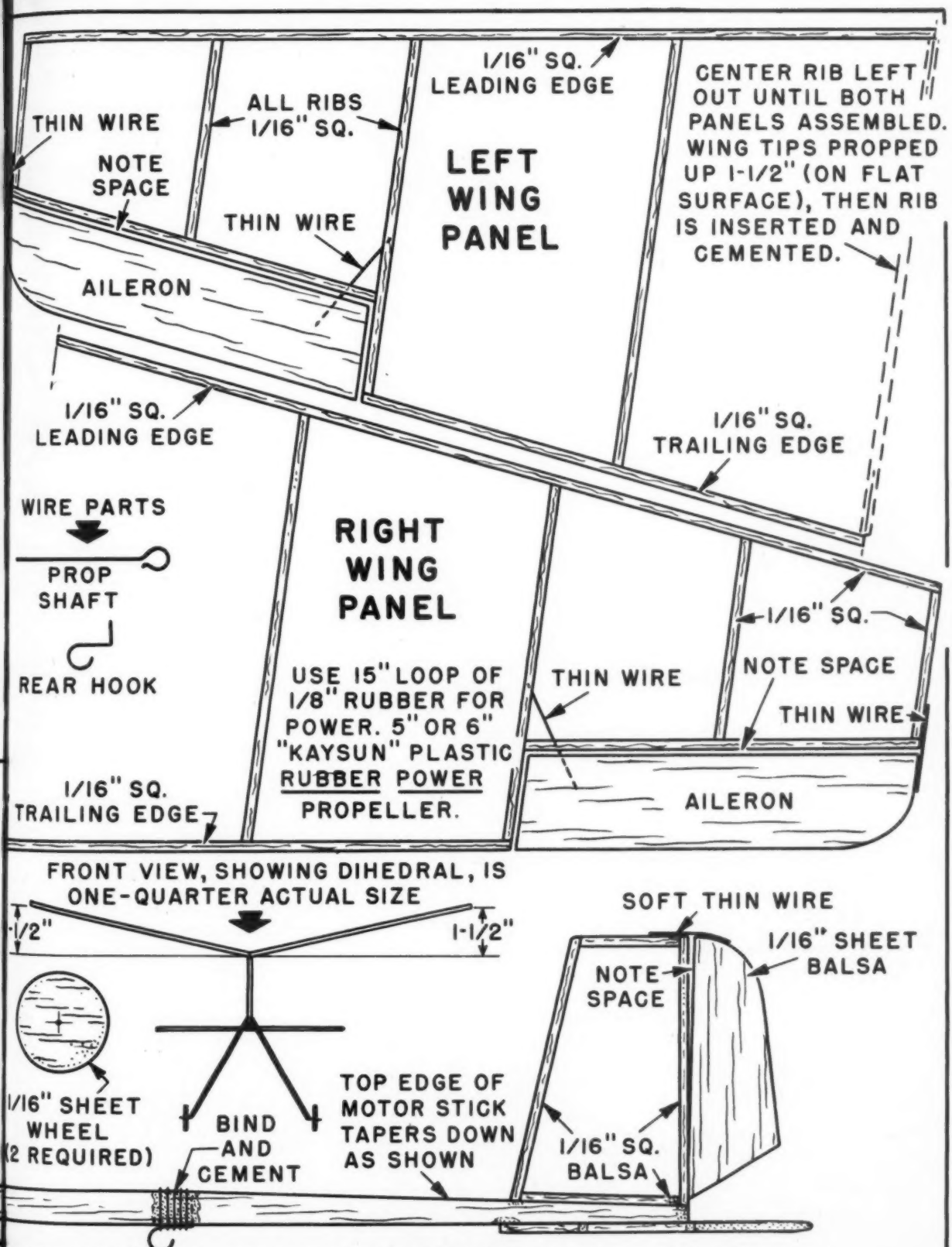
The construction is similiar to the fast flying Swifty that was presented in July '56, MAN. The wing is mounted high above the fuselage just like most of the high-powered free-flight contest models. For simplicity, the landing gear is all balsa with wheels that are cemented in place. They did not turn. The model rises off the ground easily just the same.

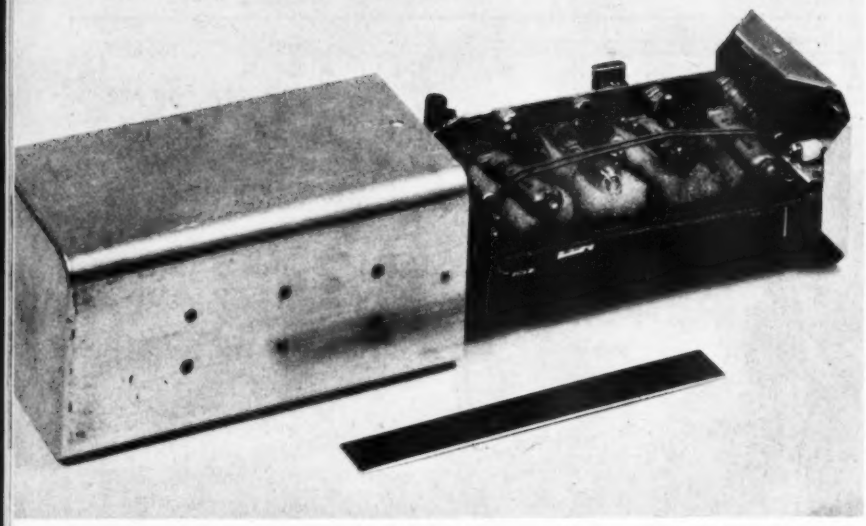
Use corrugated cardboard as a work board as it is easy to stick pins in the cardboard to hold the balsa strips while making the wing and tail framework. Lay the model drawing on the cardboard and rub shaving cream, cold cream or dry soap wherever there will be a cement joint. This will prevent the work from sticking to the plans.

First, cut all the ribs for the wing and tail. Then cut the wing and tail spars to size. Notice that the trailing edge of each wing half requires two short spars instead of one. Pin the leading edge spars in place on the drawing. Pinning in place means putting a number of straight pins along each side of the spar to hold it in position and not sticking pins through the wood to hold it in place. Now cement all the ribs, except the center rib, in place, using pins again to hold them in position, and then, finally, the rear spars are assembled and cemented with the use of pins, too. Allow the cement to set hard and remove the wing half. Repeat the operation again to make the other wing half. Cement the two halves together, after first putting a piece of soap-rubbed paper underneath them to prevent sticking to the work board. Wait a bit for the cement to harden a little, then raise the wing tip of one wing three inches and use some object, like a block of wood, to hold it at that height. The other wing half may have to be weighted with a book to prevent it from lifting. The center rib is now cemented in place and the cement joint must set hard before the wing may be lifted.

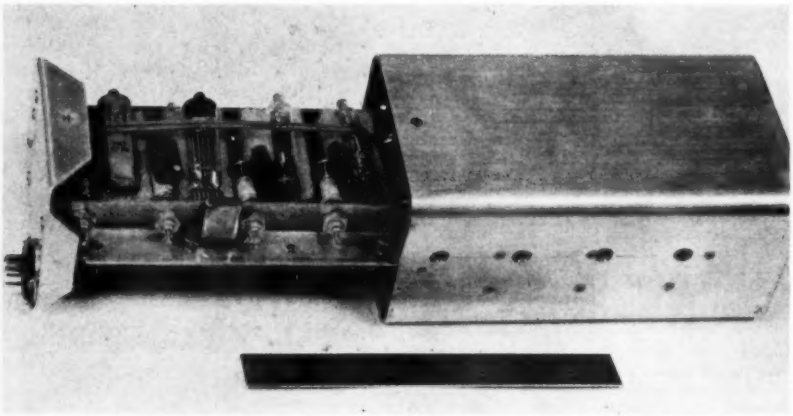
The rudder and stabilizer are made in the same way. Cut and shape the ailerons, rudder tab, and elevator from 1/16" sheet balsa and sand them down to almost half this thickness. Cut the motorstick to size and sand the rear to a taper to lighten it. Cut (*Continued on page* 54)




1/16" SQ. LEADING EDGE
CENTER RIB LEFT OUT UNTIL BOTH PANELS ASSEMBLED. WING TIPS PROPPED UP 1-1/2" (ON FLAT SURFACE), THEN RIB IS INSERTED AND CEMENTED.
THIN WIRE
ALL RIBS 1/16" SQ.
NOTE SPACE
THIN WIRE
LEFT WING PANEL
AILERON
1/16" SQ. LEADING EDGE
1/16" SQ. TRAILING EDGE
WIRE PARTS
PROP SHAFT
REAR HOOK
RIGHT WING PANEL
USE 15" LOOP OF 1/8" RUBBER FOR POWER. 5" OR 6" "KAYSUN" PLASTIC RUBBER POWER PROPELLER.
1/16" SQ.
NOTE SPACE
THIN WIRE
THIN WIRE
AILERON
1/16" SQ. TRAILING EDGE
FRONT VIEW, SHOWING DIHEDRAL, IS ONE-QUARTER ACTUAL SIZE
1-1/2"
1-1/2"
SOFT THIN WIRE
1/16" SHEET BALSA
NOTE SPACE
1/16" SHEET WHEEL (2 REQUIRED)
BIND AND CEMENT
TOP EDGE OF MOTOR STICK TAPERS DOWN AS SHOWN
1/16" SQ. BALSA
NOTE BEVEL ON ENDS OF LANDING GEAR STRUT — MAKE ONE LEFT, ONE RIGHT (MEDIUM 1/16"X1/4" BALSA).



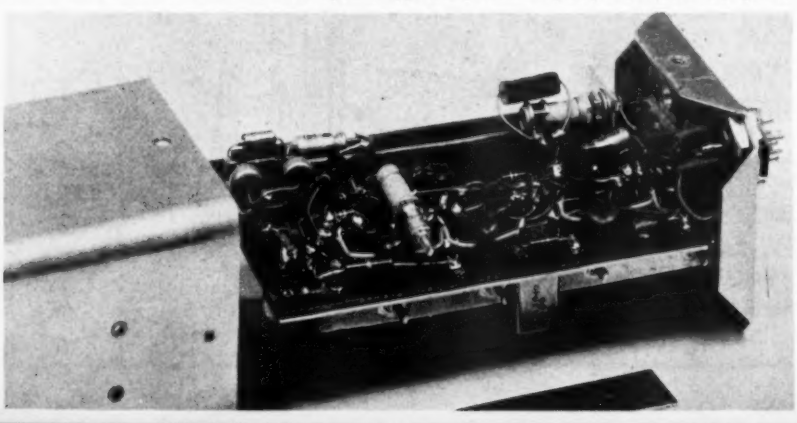
Unit slides into Ace aluminum case which, incidentally, takes care of the shielding. Note rule.



Viewed from opposite side, tube arrangement, crystal, trimmers. Arrangement is very important.

A Proved "Superhet"

Bottom view of "front end." Full-size layouts, opposite, plus these pix, provide assembly guide.



Precisely designed job is a "front end," usable with reeds, WAG TPPW, etc. Dependable selectivity kills those interference germs! Beginners—nix.

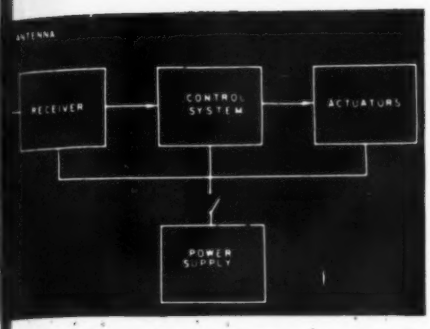
by DICK JANSSON

► The recent FCC regulations governing frequency allocations usable by R/C modelers have created quite a flurry of activity in the equipment designer's workshops. This author, being a die-hard equipment perfectionist, decided to join the pack to see if these frequencies could really be used.

To describe the approach to a model R/C control, a simple block diagram, Figure (1), is used. This diagram applies not only to the R/C gear being used now but also to equipment employing this superhet receiver. Most present day equipment, using super regenerative detectors, combine the Receiver and Control System functions into one box since the receiver portion is usually only one tube and a fairly simple device. Superhet receivers are not as simple nor as inexpensive and the two functions are placed into two boxes. Under an arrangement such as this the modeler allows the versatility of using the receiver portion for different models and even different types of control systems, such as WAG TPPW, reeds, etc. It is this receiver "front end" that will be described here. A future article will describe the extremely simple process of using the front end with your already existing control equipment.

Perhaps a brief description of the operation of a superhet receiver is in order. V_1, Figure (2), operates as a radio frequency (R.F.) amplifier. It amplifies the radio signal that is picked up by the antenna and also isolates the remainder of the receiver from unwanted signals. Tube V_2 is a dual purpose element. The second half is an oscillator to generate a small amount of radio power at the crystal frequency. This power is fed into the first half of V_2 along with the received signal from V_1. Here the two signals are mixed together with the output being a different frequency, around 4.5 Mc., called the intermediate frequency (I.F.).

V_3, the I.F. amplifier, is the real heart of this receiver (or any superhet) as it provides a power boost to the I.F. Also the job of "seeing" only a narrow band of desirable radio energy (selectivity) is taken care of in the I.F. amplifier. Superhet selectivity is the prime compelling reason to go to all of this bother. Our new frequencies are only 50KC apart and the conventional super regenerative receiver will receive signals, 250KC on either side of the



desirable signal, i.e. it will pick-up all of our new frequencies at once. The selectivity of this superhet is only 10KC and will easily distinguish between any two adjacent R/C signals.

V_4 is known as a detector. It takes the amplified I.F. signal and eliminates the radio energy leaving only the audio output (modulated) signal. Transistor V_5 is used as an intermediary between V_4 and the audio output and automatic volume control (AVC) functions. The AVC is needed to prevent "over loading" of the receiver when it is close to the transmitter and also maintain a nearly constant level audio output signal. Super regenerative receivers have a natural AVC characteristic, a desirable feature for many technical reasons.

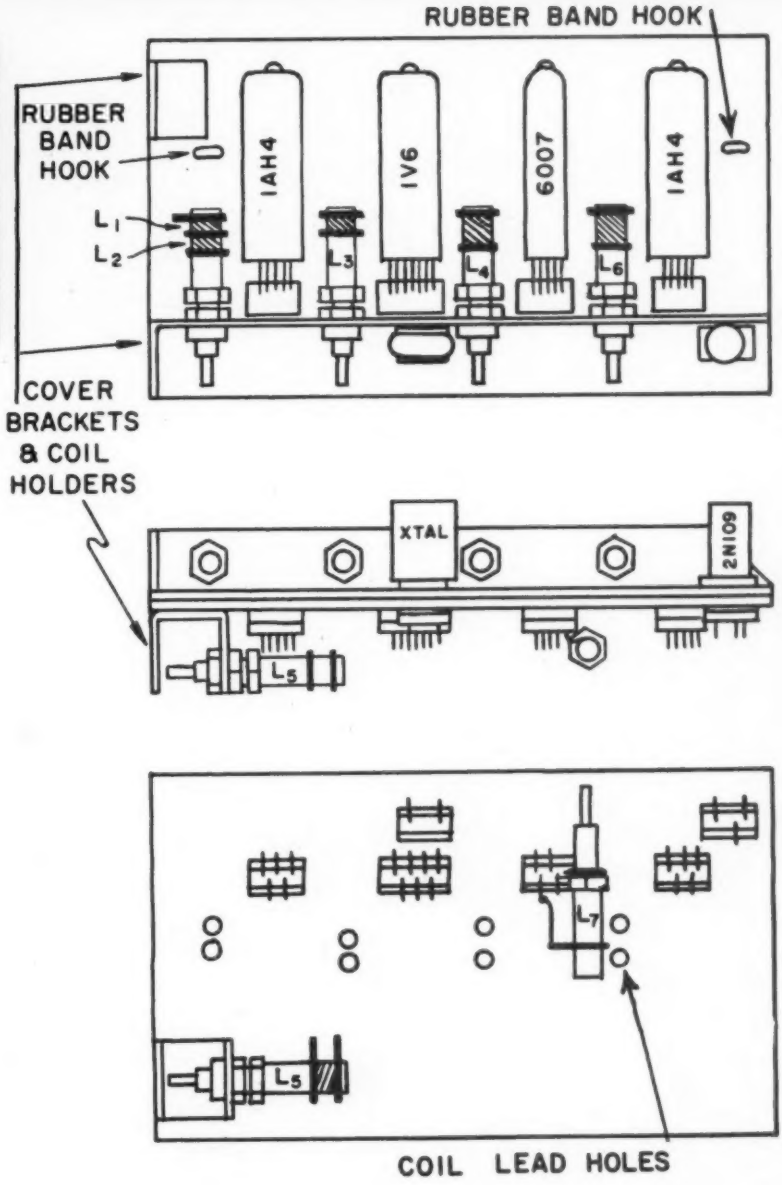
Now there will be many eyebrows lifted quite high to see a vacuum tube receiver in this day of transistors. A number of reasons exist for this, the biggest of which is a technical difference of opinion with many of the superhet receivers published or marketed today.

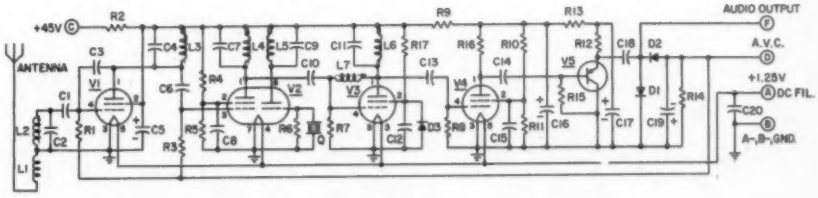
To explain, a mixer stage like V_2 actually will convert two antenna signals into the I.F. signal. One is the "sum" of the oscillator and I.F. frequencies (22.5 Mc. plus 4.5Mc. equals 27.0 Mc.) while the other is the "difference" of the oscillator and I.F. frequencies (22.5 Mc less 4.5 Mc. equals 18.0 Mc.). In this receiver the "difference" signal is called an "image". The 18.0 Mc. image is 9 Mc. away from the desired 27.0 Mc. R/C signal in which case the R.F. amplifier (V_1) can easily admit *only* the 27.0 Mc. signal.

My contention is with the frequently used ½ Mc. I.F. frequencies where an image would only be 26.0 Mc., not 18.0 Mc. No simple R.F. amplifier can adequately distinguish between 27.0 Mc. and 26.0 Mc. I fear that there are going to be "interference" troubles for R/C modelers with superhets of this type.

To build a transistor ½ Mc. I.F. amplifier is fairly easy but for the 4.5 Mc. I.F. it was found easier to use known vacuum tube techniques.

With the advent of this design several factors became evident. The superhet, unless *(Continued on page 52)*





R1, R3, R6, R7, R8, R14 – 1 MEG
R2 ——— 1K
R4 ——— 56K
R5, R10, R11, R13 ——— 100K
R9 ——— 2.2K
R12 ——— 47K
R15 ——— 3.3 MEG
R16 ——— 220K
R17 ——— 27K
NOTE: ALL RESISTORS ARE ¼ WATT

L1 – 5t #30 Awg.
L2, L3 – 8t, #30 Awg.
L4, L6 – 60t, #42 Awg.
L5 – 10t, #30 Awg.

C1, C6, C10, C13 – 47 ufd CERAMIC
C2, C4, C7, C11 – 62 ufd "SILVER MIKE" MICA
C3 ——— 5 ufd "SILVER MIKE" MICA
C5, C16 ——— 10 ufd/50V POLARIZED
C8, C14, C20 — 0.005 ufd/75V CERAMIC
C9 ——— 82 ufd "SILVER MIKE" MICA
C12, C15, C18 — 0.1 ufd/75V CERAMIC
C17, C19 ——— 1.0 ufd/35V POLARIZED

L1 & L2 WOUND ON SAME FORM
L1 THRU L7 WOUND ON $\frac{3}{16}$ DIA. CERAMIC COIL FORMS, C.T.C.
LST-L WITH WHITE DOT TUNING SLUGS

V1, V4 – 1AH4 TUBE
V2 – 1V6 TUBE
V3 – 6007 TUBE
V5 – 2N109 TRANSISTOR
D1, D2 – FEDERAL 1215 DIODE
D3 – 1N207 ZENER DIODE
Q – 22.2 Mc TO 22.5 Mc CRYSTAL FUNDAMENTAL VALPEY CRYSTAL CO. VM-6 CASE

L7 – COILHEAD SOLDERED TO PLATE V3, END CLIP TO GRID V3. ADJUST COUPLING FOR MAXIMUM SENSITIVITY WITHOUT REGENERATION

Referred to in text are, top, L, Fig. 1; above, Fig. 3; and, below, Fig. 2. Selectivity is 10 kc.

The button pushers, stick wigglers have been busy beavers. Here we go again on another full-tank run.

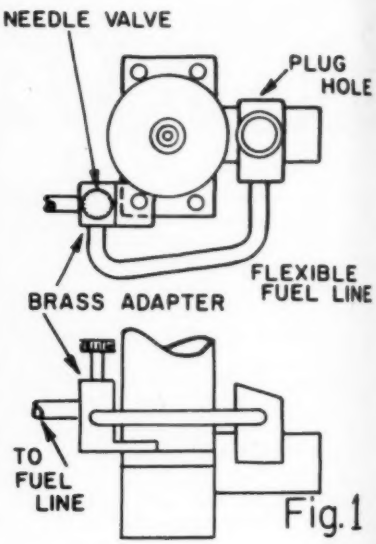


Fig. 1

radio control news

TECHNICAL TOPICS

► Having broken several needle valves in nose-overs, Herm Rau, New York City, built a new valve body from brass stock and installed it at the rear of the mounting flange on the engine. The venturi was plugged on the side opposite the fuel intake. We can attest to performance on Herm's engine, and there is no reason the idea won't work on any other engine having good fuel draw.

• • •

Our tests on Sonotone nickel-cadmium cells turned out well. Being of sintered-plate construction, they delivered peak power as stated by the manufacturer. The AA pencell size will deliver 5 amps for two minutes; 350 ma for 60 minutes and 100 ma for 250 minutes. The C-size cell is good for 10 amps for five minutes; 1 amp for 60 minutes and about 200 ma for about 350 minutes. All figures to an end-point voltage of 1.0 volts. Do not forget that one of the main characteristics of nickel-cad, mercury, silver-zinc, silver-cad and similar cells is the rather rapid drop off of voltage after a given current drain/time period. The conventional carbon-zinc cells fall off gradually, hence give a warning. The aforementioned cells give practically no warning and the voltage will drop from one volt to near zero in a matter of minutes. However, they will definitely maintain their capacity based on their rated capacity. As far as we know, the Sonotone cells are sold only through the main office (Elmsford, New York). Price of $2.95 for the AA and $3.90 for the C size is inexpensive when you consider the virtually unlimited life and peak power obtainable.

• • •

The Eveready N-46 cells (size AA pencells) are becoming popular for servo work (Ace Radio Control, $2.95 each). Figure 2 shows the calculations that should be used with Eveready Cells when used over and above their discharge period of 10 hours (10 hour rate).

While on cells and batteries, the RCer often takes such items for granted and many times blames other items

by E. J. LORENZ

Maynard Hill and Pittsburgh Pointer, at Ford Electronic Tri-Modelers RC Meet, Tecumseh, Mich. First (with WAG) in pylon, second in multi-expert division. Coupled ailerons and rudder, yet!

for a malfunction when actually it is the cell or battery. To make matters worse, this often occurs with brand new units, hence the tendency to overlook it. We refer to a mention in The Peoria RC Tattler of the "leakproof" cells produced by several of the large manufacturers. These cells have a metal disc on the negative end which is supposedly held in place by the crimped paper jacket. In other words, you now have an additional connection within the cell itself before you even make an external connection and, at 1½ volts, this is not good. Do not attempt to solder a connection to this disc (we found some brands that defied soldering) since you cannot be sure of the proper contact without fairly heavy spring pressure. The Peoria group has had several flight failures due to this problem and John Overly of the club suggests you take a sharp knife and carefully cut the jacket around the disc. This may shorten the cell slightly but the cell holder can be bent to accommodate it. We've seen plenty of the so-called "leakproof" cells leak and corrode on the outside of the jacket and would much rather have this condition than the possibility of no power at all due to high resistance contacts. If you're not sure of the cells you have, it would pay to take one apart and examine it.

• • •

Mr. Robert Fiedler, 1730 Meadows, East Peoria, Ill. prefers to stick to RC boats and has built a rather unusual one in his 42 in. "Electricia." Built of balsa, Masonite, hard wood and fibreglass material, it is powered by two Pitman 9003 motors driven by a 12 amp/hour motorcycle battery. Two smaller 6-volt wet cells supply additional power to the actuators, lights, etc., and recharging is done by plugging into a single socket on the boat. A CG RT-1 receiver and a Gyro transmitter have given excellent reliability, especially when you consider the approximately 30 different functions performed through a special selector which operates from a single channel. The selector is homemade, performs these functions: two speeds forward and reverse, directional control; bell rings, horn blows, radar screen turns; raise and lower flag; rotate and elevate guns, firing one to 8 missiles; fires torpedoes (small gas cartridges which are pierced and fired from the tubes), lower dinghy into and out of the water (a crane device shifts a weight beamwise to keep the boat on a level keel when the dinghy is removed); has a loud speaker in the super-structure and plenty of lights to give indication of cam settings on the selector. Incidentally, the dinghy is controlled by an MC carrier receiver and the radio and drive motor are turned on when the boat reaches the water. A float switch does the trick and also turns (*Continued on page* 38)

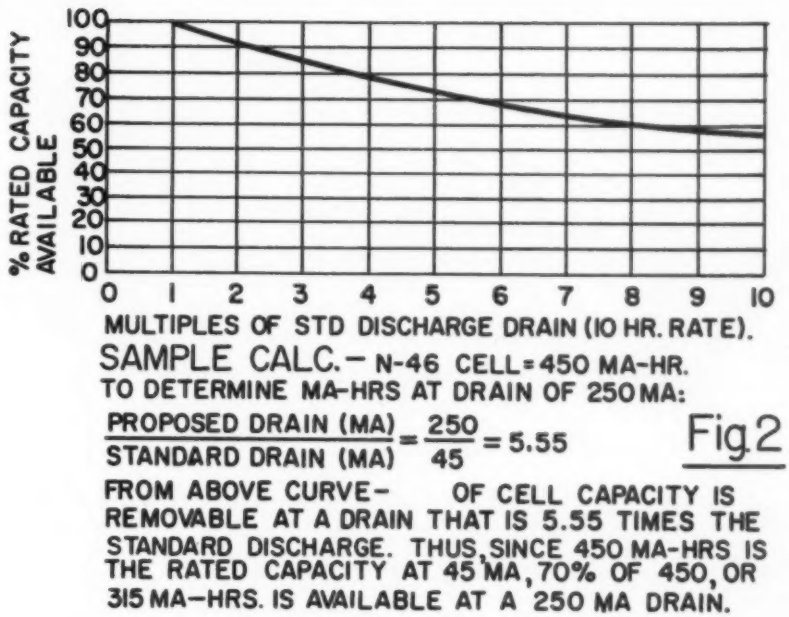

% RATED CAPACITY AVAILABLE
100
90
80
70
60
50
40
30
20
10
0
0 1 2 3 4 5 6 7 8 9 10
MULTIPLES OF STD DISCHARGE DRAIN (10 HR. RATE).
SAMPLE CALC.– N-46 CELL=450 MA-HR.
TO DETERMINE MA-HRS AT DRAIN OF 250 MA:
PROPOSED DRAIN (MA) / STANDARD DRAIN (MA) = 250/45 = 5.55
FROM ABOVE CURVE– OF CELL CAPACITY IS REMOVABLE AT A DRAIN THAT IS 5.55 TIMES THE STANDARD DISCHARGE. THUS, SINCE 450 MA-HRS IS THE RATED CAPACITY AT 45 MA, 70% OF 450, OR 315 MA–HRS. IS AVAILABLE AT A 250 MA DRAIN.

Fig.2

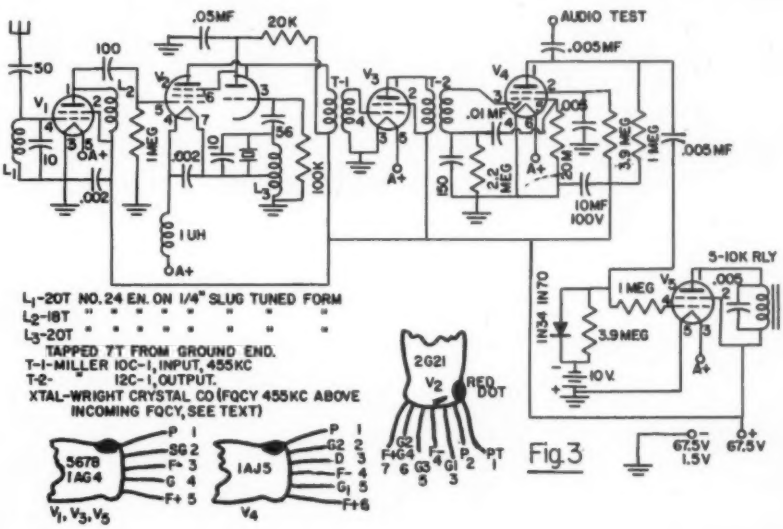
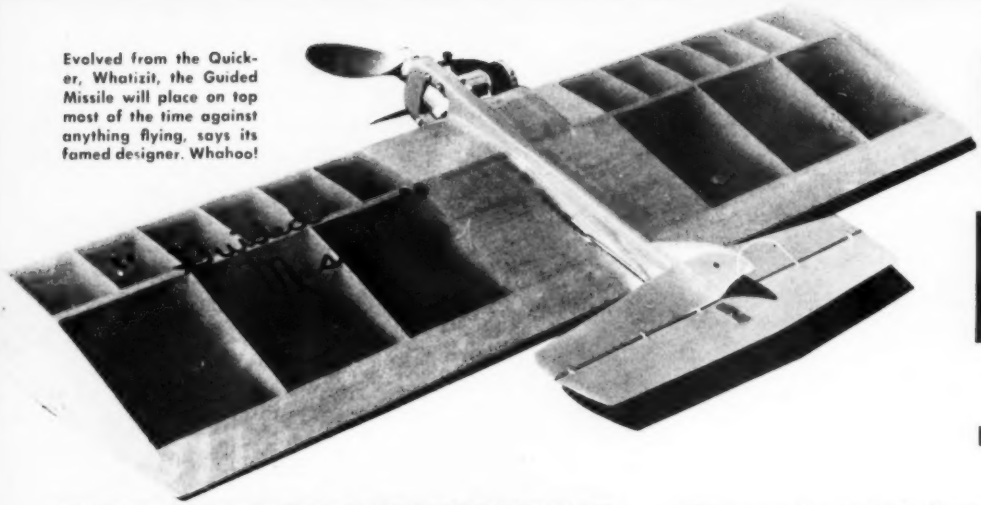


Fig.3

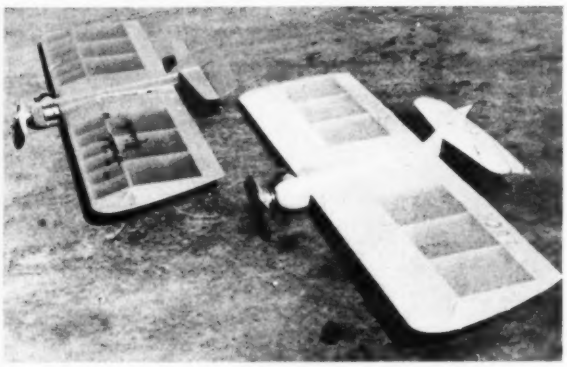
Evansville, Ind. (where they go 50 miles to get away from traffic lights—what no superhets?) RC Club has 20 members and 57 ships. Fly everything but good old single channel most popular.

Evolved from the Quicker, Whatizit, the Guided Missile will place on top most of the time against anything flying, says its famed designer. Whahoo!



Guided Missile

by RILEY WOOTEN

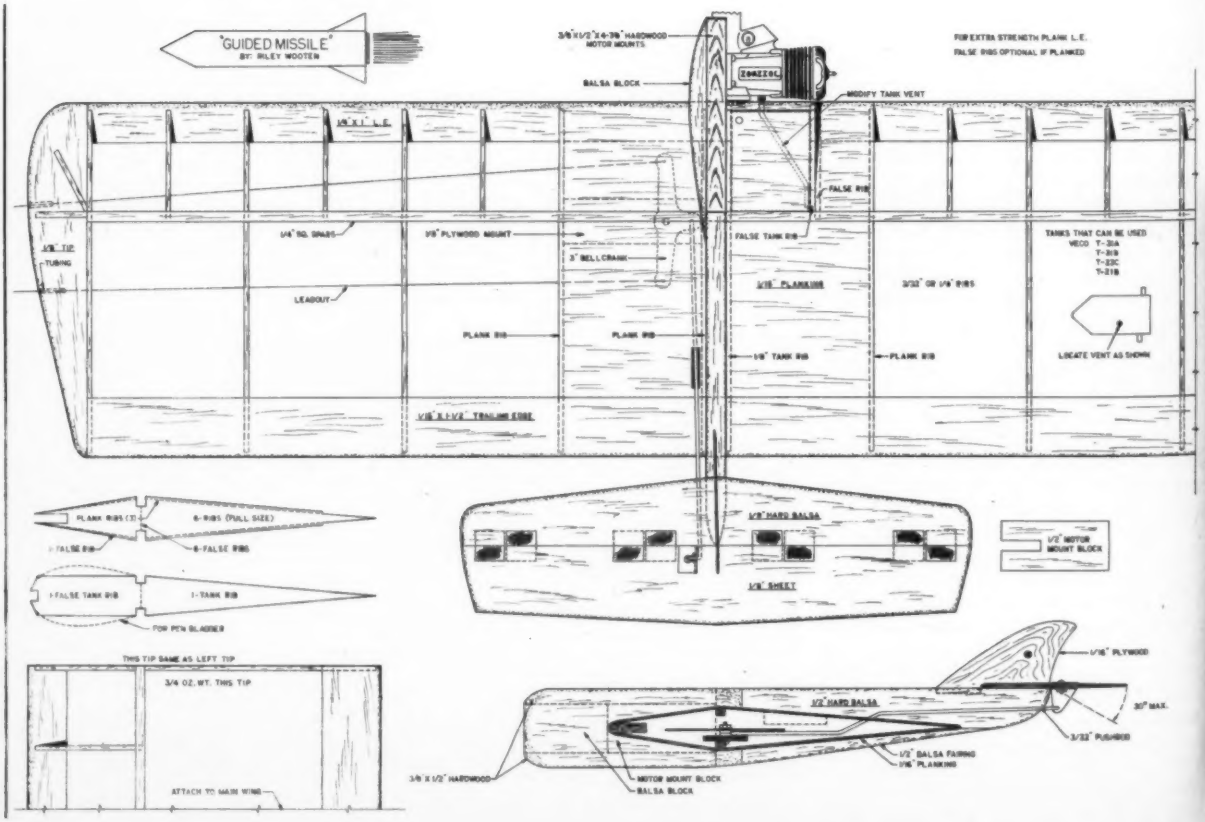


Diamond airfoil, better handling, make this combat job a tremendous competitor.

► This combat plane looks conventional but really is quite unusual.

The first, and most important, feature is the airfoil. It is a diamond section much like that used on some of the guided missiles, hence the plane's name. It is more stable than other sections I have used, yet in maneuvers it acts much like an undercambered (polywog) airfoil or a wing using movable flaps.

The airfoil was first thought about for combat in the summer of 1957. While on vacation in California, Hi Johnson and myself got into one (*Continued on page* 44)



FULL SIZE PLANS AVAILABLE. SEE PAGE 62.

Thimble-Drome

World's Foremost Name in Model Engines

ANNOUNCES

TWO TERRIFIC .15's

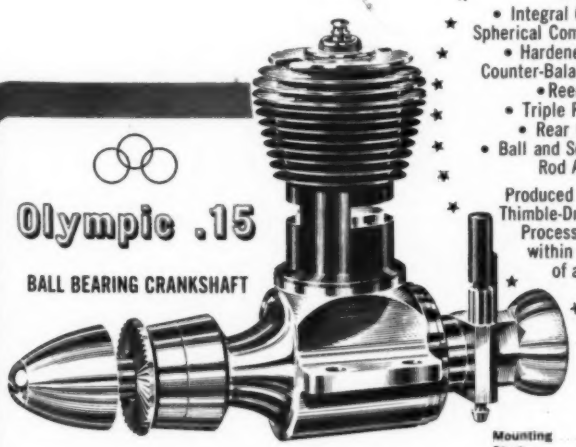
FOR ADVANCED SPORT AND CONTEST FLYING

.15 Series

FEATURES

- Integral Glow Head with Spherical Combustion Chamber
- Hardened and Ground Counter-Balanced Crankshaft
- Reed Valving
- Triple Periphery Jets
- Rear Carburetion
- Ball and Socket Piston and Rod Assembly

Produced by Exclusive Thimble-Drome TEM-TROL Process—Accuracy within Millionths of an Inch



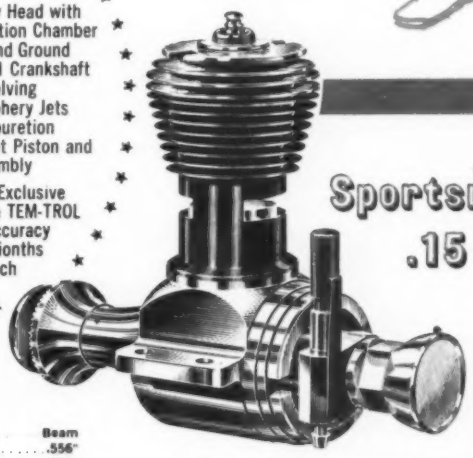
Olympic .15

BALL BEARING CRANKSHAFT

A super hot contest engine, surpassing engines of much greater cu. in. displacement in power, performance, and endurance. Extra precise fitting of piston and cylinder to top contest requirements.

Recommended for F.A.I. free flight, and speed

12.98



Sportsman .15

Just what the name implies. A dependable engine that delivers smooth performance in both 4-cycle or 2-cycle operation. Entire crankcase made of a super bearing-alloy which assures lasting bearing life.

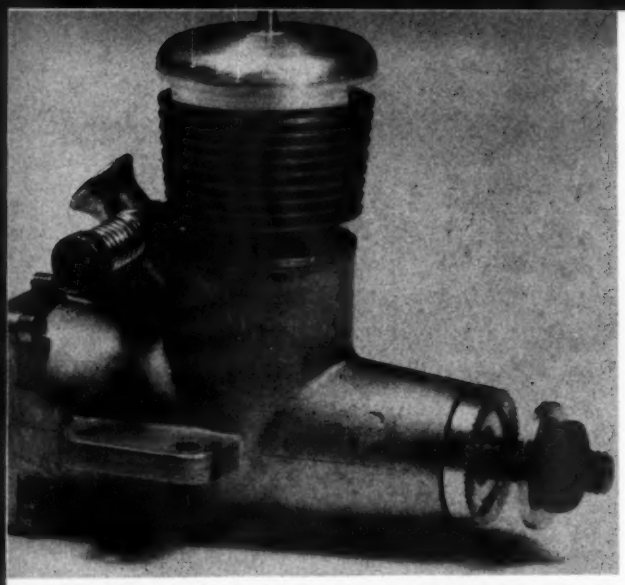
Recommended for control line, radio control, and scale free flight

7.98

Mounting	Beam
Stroke	.556"
Bore	.585"

L. M. COX
MANUFACTURING CO., INC.
Santa Ana, California

Send for folder M10, *"How to Get the Best Performance from Your Engine." Informative, valuable*



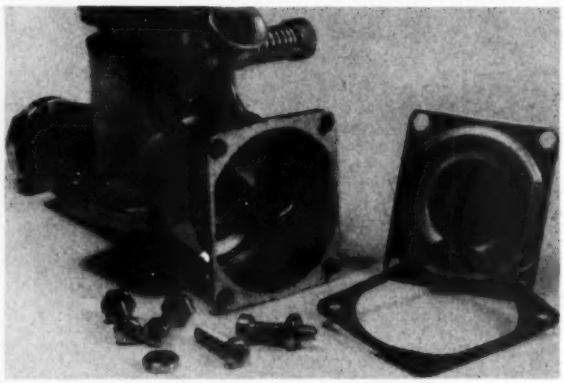
Easy starting and rugged construction are emphasized to make this .09 an ideal beginners' engine. Rear needle always easy to adjust.

by P. G. F. CHINN

Aimed at the beginner market, for those wanting more than .049's, unique motor is a new approach by this manufacturer.

Most interesting feature is use of once standard three-port design, here brought up to date. A venturi, but no shaft induction.

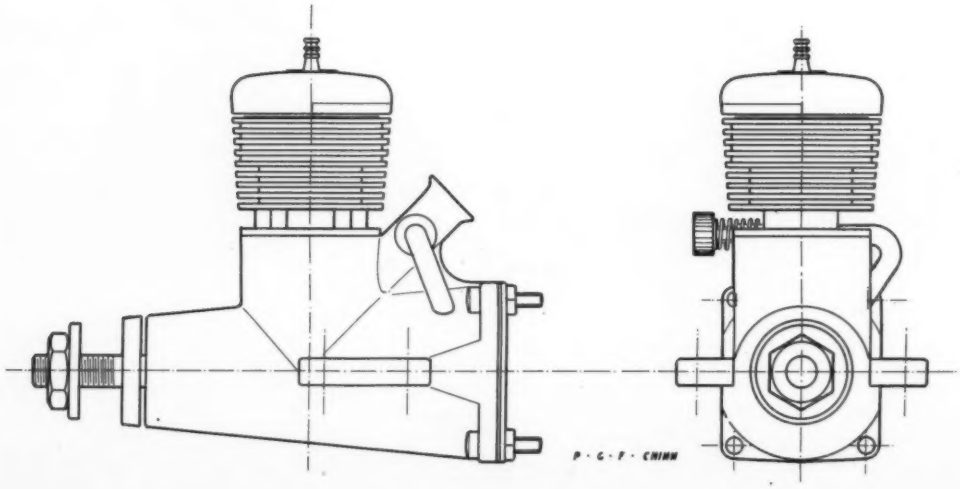
ENGINE REVIEW • FOX .09



Choice of beam or radial mounting, with or without using tank.

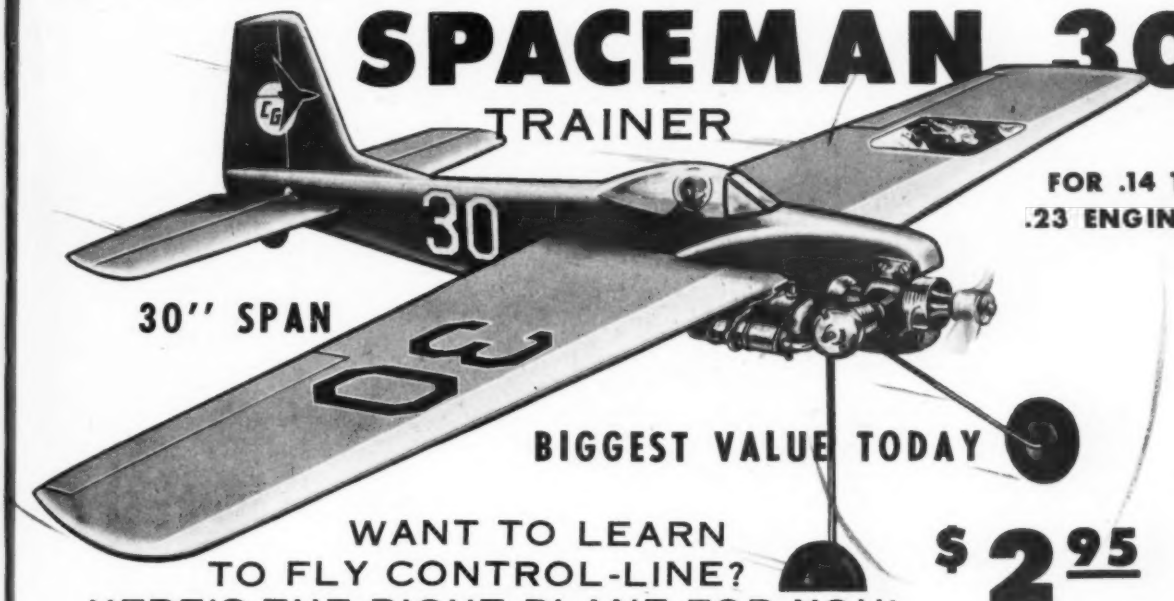
► Distinctive in appearance, this new model by Duke Fox is aimed at the beginner market and marks a complete breakaway from this manufacturer's previous designs. When, prior to the release of actual engines, illustrations of the .09 appeared, there was much speculation as to what the inclined rear intake meant. Many modelers, preoccupied with rotary-valve engines, assumed that some sort of rear shaft induction system was embodied. In fact, this new Fox revives the old 3-port two-cycle layout in a new guise.

In the 3-port type engine, so called because the cylinder contains the intake, as well as the bypass and exhaust, ports, fresh mixture is drawn into the crankcase via a port uncovered by the piston skirt as it approaches the top of the stroke. It is the system that was employed on most prewar model gas engines and is still widely used by small two-cycle engines of the type (*Continued on page* 55)



CARL GOLDBERG BRINGS YOU. . . .

SPACEMAN 30
TRAINER



FOR .14 TO .23 ENGINES

30" SPAN

BIGGEST VALUE TODAY

WANT TO LEARN TO FLY CONTROL-LINE? HERE'S THE RIGHT PLANE FOR YOU!

$2.95

Dear Modeler: Our new Spaceman Trainer is really the plane to learn with. A beautiful, smooth flyer - yet designed RUGGED for beginner's needs. For instance, the landing gear is tough 1/8" diameter genuine music wire, held in place by an entirely new, simple shock absorbing method. And notice how the streamlined plywood doublers come back to the middle of the wing for extra strength. The controls have two positions—"gentle" to get you over those first flights, and "active" for wingovers and zooming up and down. It's designed particularly for the new Cox Thimble Drome 15 and Fox 15 engines, and has been flight-tested with the powerful K&B 23 as well. Simple to build because the structural parts are all die-cut balsa and plywood—no paper covering. In addition, the kit has all the hardware, screws, nuts, washers, wheel retainers, etc., a hard aluminum bellcrank and bushing, formed landing gear and tailgear, wheels, large attractive decal with all numbers, Spaceman figure, rudder decoration, pilot head, etc., engine bearers, nylon for hinges and reinforcing, and a fully illustrated clear step-by-step Plan, including instructions on Learning How to Fly. See your dealer now for this fine kit - a really big value at only $2.95.

RANGER 30 - Die-cut balsa. 30" span for .020-.049 engine. . **$1.95.**

STUNT MAN 23 - Die-cut balsa. 23-1/2", for .049-.09 engine. **$1.95**

SPACE JET 21 - Die-cut balsa. 21" span, for .020-.049 engine . . **$1.69**

SWORDSMAN 18 - Die-cut balsa. 18" span, for .020-.049 engine **$1.49**

1/2 A BLAZER - Die-cut balsa, tissue. 40" span, for .049 engine. **$2.50**

RANGER 28 - My "pre-fab plus paper," rubber-powered, 28" span, 2 colors. **$1.00**

SHOESTRING RACER - All die-cut balsa, rubber-powered, 18" span. Complete. **$1.00**

SPIRIT OF ST. LOUIS - A rubber-powered miniature duplicate, 21" wingspan. **$1.00**

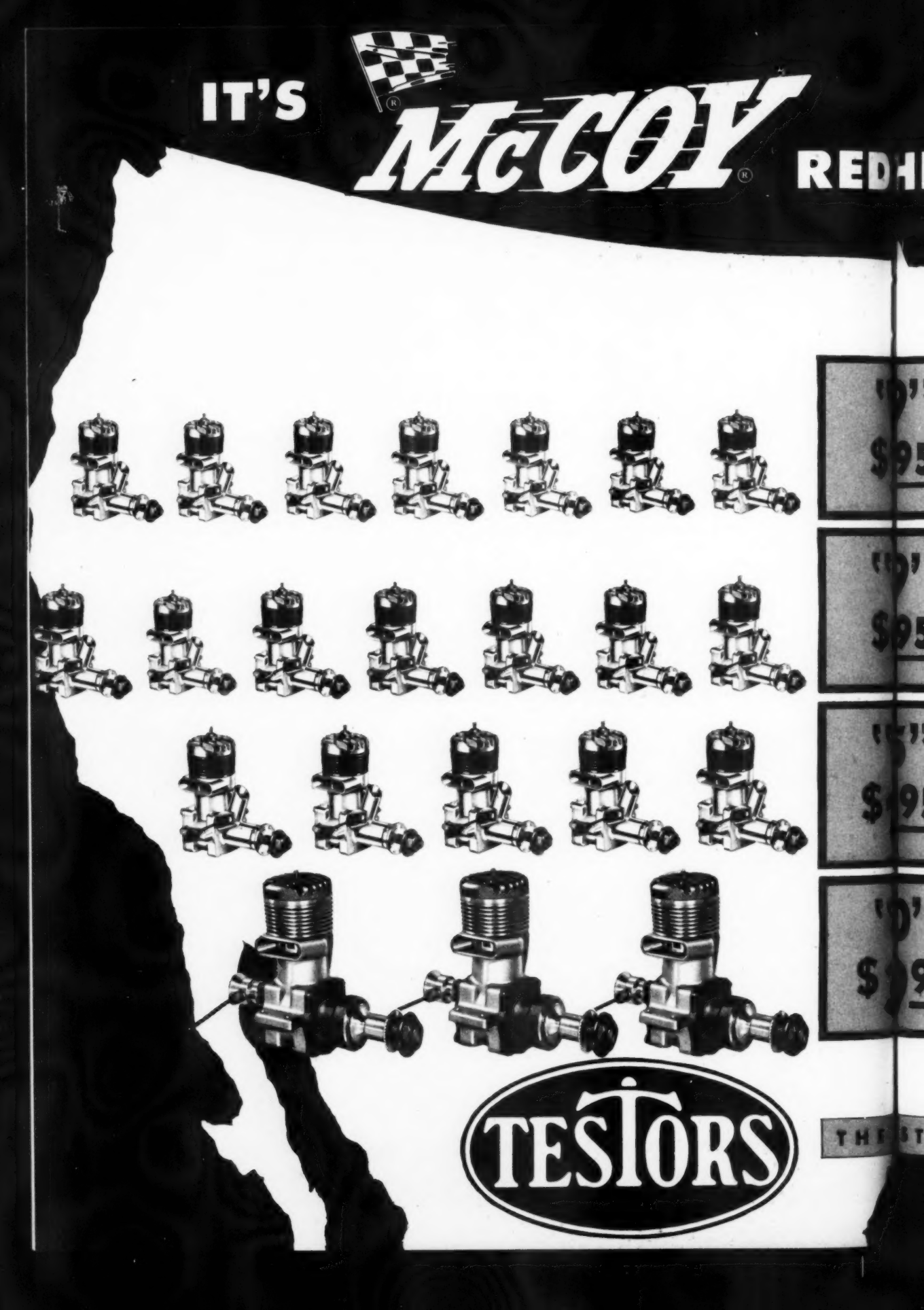
RANGER 21 - All die-cut balsa parts, rubber-powered. 21" span beauty **$1.00**

CESSNA 180 - Rubber-powered favorite, all balsa, 21" span. The champion of business liners **$1.00**

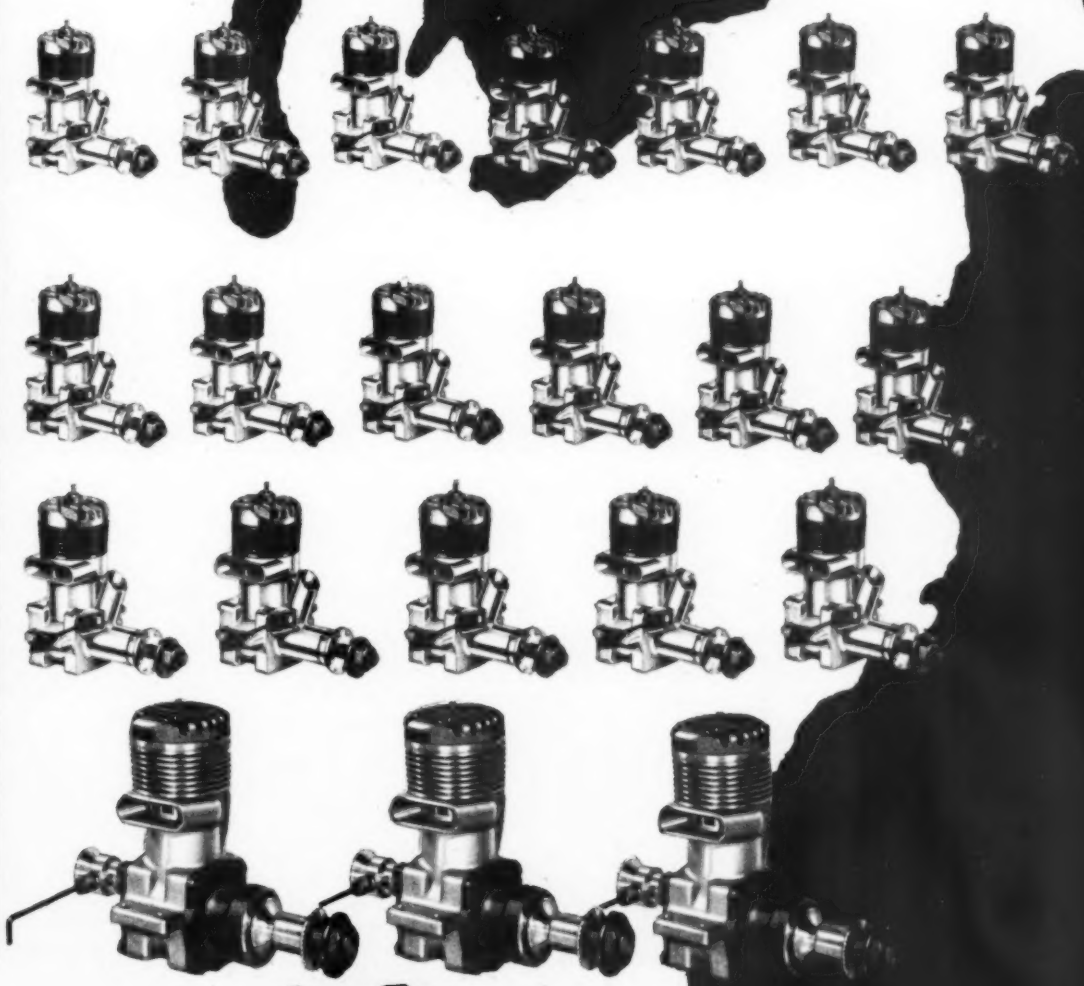
P. S. The easiest way to get these planes, of course, is to see your dealer. If no dealer near you, or he doesn't have them, send me cost of plane plus 25¢ each for postage and packaging. Better yet, send cost of any three and I'll pay the postage!

Carl Goldberg

CARL GOLDBERG MODELS INC.
9848 S. CLAREMONT • CHICAGO 43, ILL


IT'S
McCOY
RED
TESTORS

DHEADS...Coast to Coast



95

95

95

95

STOR CORPORATION • ROCKFORD, ILLINOIS

FLASH! And still they come . . .

Jan. Triple A Southwest Regional Meet, Phoenix, Ariz. FIRST in Class A.

Feb. FIRST and SECOND in ½A, Thunderbugs.

FIRST and SECOND in ½A, Pacific Coasters.

Mar. FIRST in ½A, AMA, Thunderbugs. NEW RULES.

What are you waiting for? Move up today to

Toshi Matsuda's **ZERO**

$2.95

The hottest thing in 1/2A! It climbs higher, faster . . . stays up longer. Designed to use ALL the power of the best .049s! For an unsurpassed thrill, hang your engine on a ZERO. See for yourself the super performance that has already won a string of Firsts! At a recent contest the "anyone can get 5 minutes" models were doing 3 to 3½ minutes. Tosh dethermalized his ZERO **three times straight** at over SEVEN MINUTES. Does that tell the story?

WARNING! Watch the engine-run— or you may put your ZERO in orbit!

A-1 NORDIC GLIDER

THE GHOST
Kit $2.95

Only A-1 Class Nordic Glider on the market! Adapted from latest, **hottest** German designs. With Auto Rudder and Pop-Up De-thermalizer.

FREE FLIGHT DELTA

for .049 Just $2.50

If you too are curious about a Delta, here's dependable performance and true Delta characteristics in a job that has been thoroughly proven before being announced.

MISS TINY $5.95

Exceptional wind penetration and stability!

A good flying R/C Model doesn't have to be an ugly box! Miss Tiny is world-famous for her beauty and flying qualities. Uses hot .049 to .099 engines, depending on weight of R/C gear. Wing Span 46". Finished cowl and die-cut parts.

Ask your dealer, or send M. O. and we'll ship prepaid. (Mr. Dealer: If your jobber won't supply you, send M. O. for prepaid shipment, regular discounts.)

MODELCRAFT

8943 SOUTH WESTERN AVENUE
LOS ANGELES 47, CALIFORNIA

Tied-down at an EAA Fly-in, the Texan contrasts more typical (of home builders) open cockpits, parasols, low wings, racerlike lines. Far smaller than a Cub, the Texan is work-horse design.

Two Texans, Sim, and his faithful steed. In color it looks like a million bucks. Cream, red.

Home Built Parade

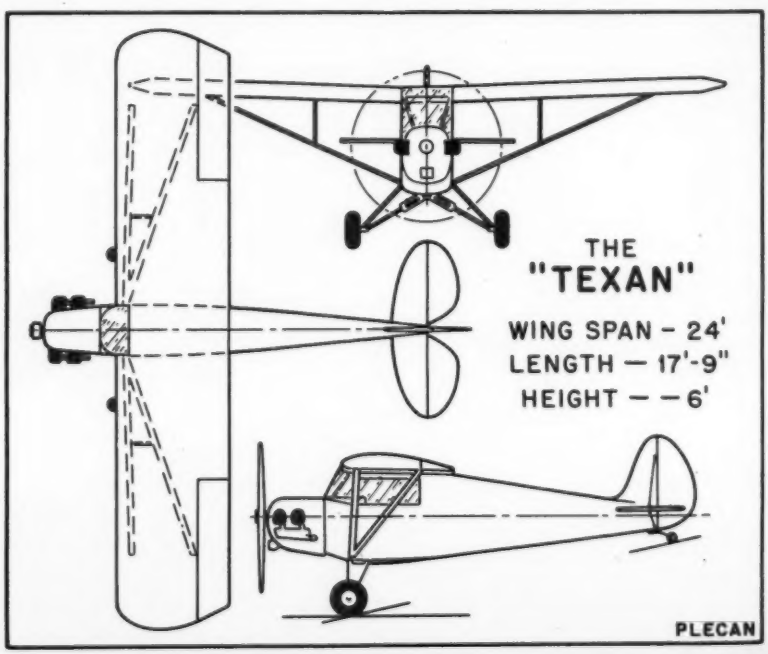
THE TEXAN

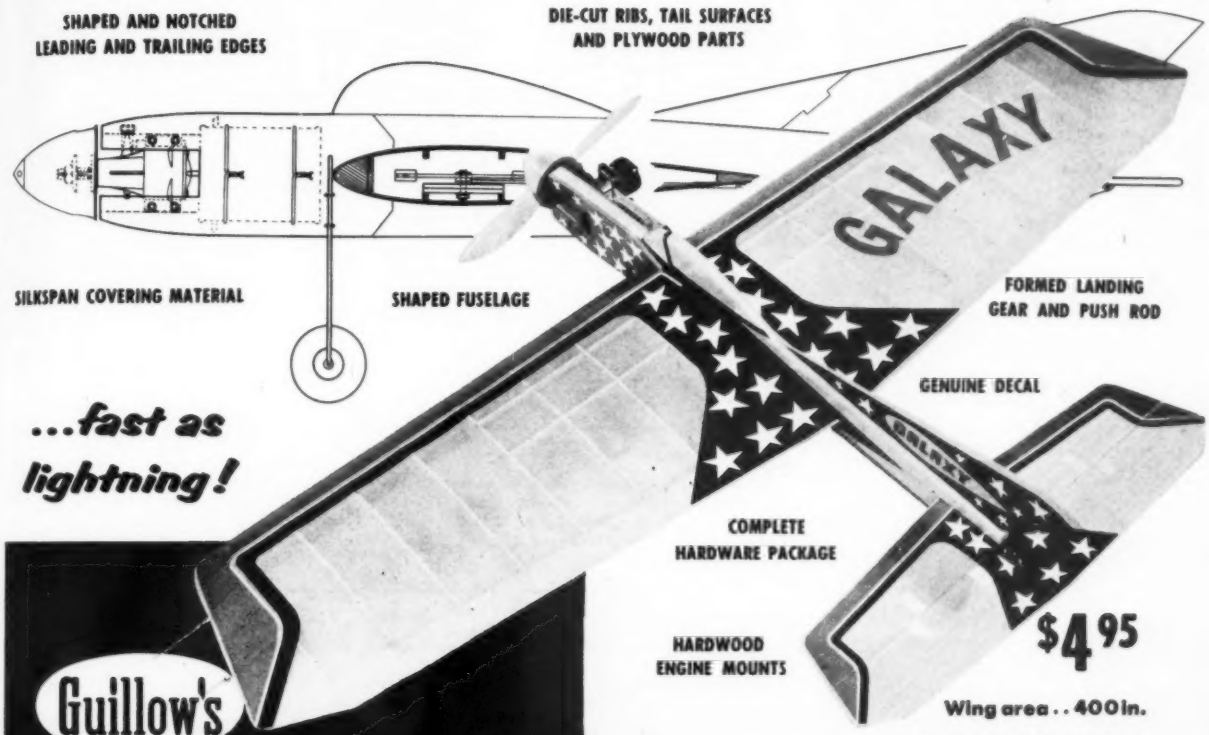
Sim Paine's one-place job stresses utility. A good ship—makes a good model!

► Designed and built by Sim Paine, Booker, Tex., the Texan is a rugged machine which its owner uses like a horse. It takes him places. To a modeler, the Texan appears an ideal free flight or scale RC. It is simple, straight edged, boxy, but cute.

The Texan is a small job, spanning only 24 ft., for a length of 17 ft., 9 in. Gross weight is 900 pounds, empty 550. A Continental A65-8 engine (65 horse), and Beech-Roby controllable prop provide a top speed of 115 mph, cruise of 95 at 2200 rpm, and a stall of 50 mph. The take-off run is 200 ft., and the landing roll 125 ft. Baggage? All you can get in.

Color scheme is Piper Pacer cream, and Insignia red with black pinstripes. If you scale up the three-view, the airfoil is a Clark Y, and the wings have two degrees of dihedral.





Guillow's

GALAXY

45 in. Wing span

U-CONTROL MODEL

for STUNT · COMBAT · SPORT

The "jet styled" Galaxy is exceptionally fast and tight maneuvering when used with a hot combat .35 engine. When powered with standard motors, it is a sensitive and highly maneuverable stunt and sport model. The Galaxy's light weight, sturdy construction and superior design endows it with the flying qualities dreamed of by all U-Control fans.

Guillow's

20 inch wing span

SKY KING

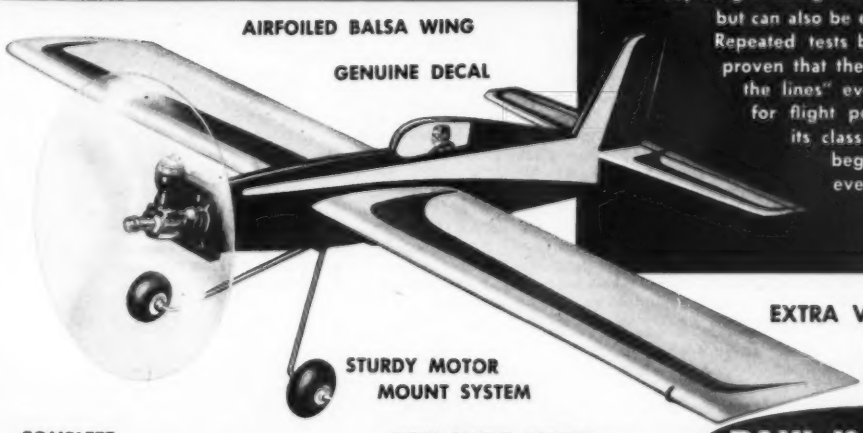
KIT GM-19

U-CONTROL MODEL FOR .020 ENGINE

Completely pre-fabricated

The Sky King is designed primarily for the .020 engine but can also be easily adapted for .049 motors. Repeated tests by designer Lou Andrews has proven that the Sky King will "stay out on the lines" even in high winds. No equal for flight performance and durability in its class. An ideal trainer model for beginners — a terrific value for every modeler!

$1.79



EXTRA VALUE INCLUDED IN KIT!
DACRON FLYING LINES AND CONTROL HANDLE

COMPLETE HARDWARE PACKAGE

NEW ANGLE POISED LANDING GEAR ARRANGEMENT

PAUL K. GUILLOW Inc.
WAKEFIELD MASS

If not available at your Hobby Dealer send direct to factory adding 25¢ packing and postage in U.S.A., 40¢ outside U.S.A.

☆☆☆ 1959 NATIONAL WINNERS ☆☆☆

Bob Hunter, Grand National Champion, gained 653 points in nine events, seven free flight.

Senior Champ, Sherwin Maslowe.

Bill Hunter, Junior Champ.

During the week of July 26–August 2, the 28th National Contest ran at Naval Air Station in Los Alamitos, Calif.

WHO WON?

Grand National Champ	Bob Hunter
Open National Champ	Bob Hunter
Sr. National Champ	Sherwin Maslowe
Jr. National Champ	Bill Hunter

INDOOR

Stick:	Open—Lewis Gitlow, 21:43.7; Sr.—Sherwin Maslowe, 18:25.0; Jr.—Brent Hawkins, 11:56.0.
Paper Stick:	Open—Loran Salisbury, 16:05.0; Sr.—Sherwin Maslowe, 13:42.05; Jr.—Brent Hawkins, 13:38.6.
Cabin:	Open—Charles Sotich, 17:54.4; Sr.—Robert Scoville, 7:30.6; Jr.—Brent Hawkins, 5:36.0.
Hand-Launched Glider:	Open—Jack Block, 1:09.2; Sr.—Victor Cunnyngham, Jr., 1:04.6; Jr.—David Elden Copple, 0:54.0.

GLIDER

Hand-Launched Glider:	Open—James Scarborough, 10:12.8; Sr.—John Diebolt, 10:48.8; Jr.—James Paterson, 8:49.4.
Nordic A-1	Open—Warren Kurth, 16:23.0; Sr.—Victor Cunnyngham, 11:30.6; Jr.—Kurt Andersen, 11:34.4.
Nordic A-2	Open—Charles Sotich, 13:57.6; Sr.—Jose Ramirez, 14:53.0; Jr.—Roger Woody, 11:56.7.

RUBBER

Unlimited	Open—Loran Salisbury, 21:11.0; Sr.—John Watson, 9:37.0; Jr.—David Copple, 8:59.1.
Wakefield:	Open—Henry Cole, Jr., 17:41.6; Sr.—Robert Sifleet, 8:08.9; Jr.—Larry Miller, 13:00.8.

FREE FLIGHT

Half-A:	Open—Victor Cunnyngham, 20:11.0; Sr.—Ray La Hood, 14:52.2; Jr.—Brad Wilder, 12:49.0
Class A:	Open—John Pond, 27:28.8; Sr.—Don Mello, 26:12.0; Jr.—Allan Ross, 27:58.8.
Class B:	Open—Harry Gould, 21:27.7; Sr.—Dennis Alford, 12:31.3; Jr.—Bill Hunter, 17:23.0.
ROW:	Open—Mel Schmidt, 12:13.0; Sr.—Wayne Pratt, 9:12.8; Jr.—Bill Hunter, 11:22.4.
FAI Power:	Open—Howard Timlin, 19:29.0; Sr.—Ray La Hood, 14:04.2; Jr.—Kermit Walker, 11:20.6.
Flying Scale:	Open—Walter Mooney, 119 pts.; Sr. and Jr.—Douglas Mann, 71 pts.
Helicopter:	Open, Sr. and Jr.—Parnell Schoenky, 88.5 pts.
Rocket Power:	Open—Edward Shipe, 12:00.00; Sr.—Kenneth Whiting, 9:50.2; Jr.—Dan O'Malley, 7:18.6.

PAA LOAD

Gas:	Open—Donald Chapton, 13:58.0; Sr.—Sherwin Maslowe, 7:15.5; Jr.—Brent Hawkins, 6:53.1.
Clipper Cargo:	(049) All Ages Combined—Robert Sutton, 140.02 pts.
Clipper Cargo:	(02) All Ages Combined—Bill Langley, 39.25 ozs.
Jet:	Open—Arnold Zimmerman, 9:12.4; Sr.—Sherwin Maslowe, 5:59.7; Jr.—Daniel Owen O'Mally, 14:37.0.
Junior Jet:	Harold Arthur Osborne, Jr., 4:57.7.

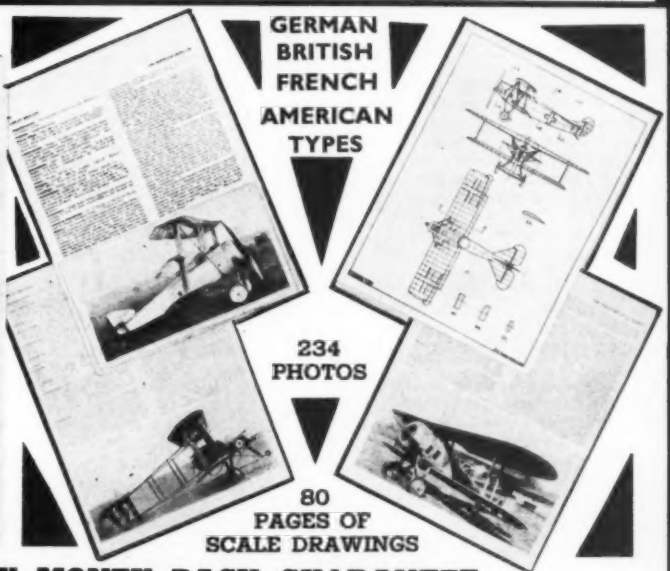
CONTROLLINE

Speed Half-A:	Open—Warren Kurth, 91.35; Sr.—Bill Brooks, 92.65; Jr.—Jim Booker, 82.31.
Speed A:	Open—William Wisniewski, 134.07; Sr.—Larry Grogan, 118.06; Jr.—Dubbie Jett, 103.29.
Speed B:	Open—Ed Rankin, 138.73; Sr.—Fred Carter, 136.72; Jr.—John Bowman, 128.06.
Speed C:	Open—James Nightingale, 154.18; Sr.—Fred Carter III, 150.82; Jr.—Leroy Polk, Jr., 151.71.
Proto Speed:	Open—Morton & Grogan Team, 117.14; Sr.—Larry Grogan, 122.07; Jr.—Kim Carney, 107.68.
Jet:	Open—James Summersett, Jr., 160.79; Sr. and Jr.—Bill Brooks, 149.82.
Stunt:	Open—Bob Palmer, 534; Sr.—Bill Werwage, 608⅓ pts.; Jr.—John Gudvangen, Jr., 556⅔ pts.
Flying Scale:	Open—Wiliam Ogden, 380 pts.; Sr.—Elbert Rutan, 258 pts.; Jr.—Michael Bryan, 205 pts.
Combat:	Open—Riley Wooten; Sr.—James Cowart; Jr.—Charles Meinhardt.
Team Racing:	All Ages Combined—Eugene Leedy.
U.S. Navy Carrier:	Open—Virginia Randall, 437.51 pts.; Sr.—Garry Korpi, 462.67 pts.; Jr.—Larry Miller, 362.81 pts.

RADIO CONTROL

Multi-Channel:	All Ages Combined—Robert Dunham, 519 pts.
Rudder-Only:	Open—Charles Hayes, 191 pts., Sr. and Jr.—Paul Refsell, 130 pts.
Intermediate:	All Ages Combined—Ken Willard, 257 pts.
Scale:	Robert Schultz—274 pts.
Pylon Race:	W. S. Deans—41.36.

"AIRCRAFT OF THE 1914-1918 WAR"



SOLD ON 10 DAY MONEY BACK GUARANTEE

CONTENTS: Eighty aircraft flown by nations in the 1914 - 18 War are each described with a large photograph and full set of 1/72" scale three-view drawings. Wing and fuselage sections given. Complete dimensions, weight, armament, performance and power plant are given for each. "Operational History" of each plane is told in great detail. These Photos and Drawings are a must for all solid model and scale model builders.

IN ADDITION: a further 24 Aircraft are described with large photo, complete dimensions, weight, armament, etc. As with the first 80 Aircraft, full information is given as to the squadrons that these planes were issued. Yet another 94 more British, German, and French are shown of the "Experimental" and "Rare" types.

PLANS: The plans are all drawn to same 1/72" scale be they Bomber or Fighter type. Fighter type cover full page, the Bombers being larger are drawn on Double size pages that fold out from the book approximately 9"x 20" These are a must for all scale builders. Every conceivable plan is given; Spads, Fokkers, Nieuports, B E 2 C, Bleriot, Rumpler Taube, Curtis Jenny, these are just a few.

PHOTOGRAPHS: 234 large photos of every Airplane Flown in W W I, plus additional photos of rare and seldom seen experimental planes. These are all large and clear ranging from 1/3 size of page on up to full page photos. Complete squadron photos are also shown in great detail. These photos alone worth more than book price.

"14 - 18" BOOK DELUXE BOUND **$11.95** ☐ Sample pages, large 2 color folder about book 25c ☐

"AIRCRAFT OF WORLD WAR ONE"

Contains over 50 photos, many rare Imperial Museum shots seldom published, Each Aircraft is dealt with by a full page writeup. Technical details of each plane are given as follows: Name and power of engine, wing span, length, and height of each plane. Empty and loaded weight, max. speed, climb rate, service ceiling, armament and number in crew. "Lighter than Air" Airships also covered in detail. You will like the way the Spads, Farmans, Avros, Vickers, Nieuports, Bristols, Fokkers, Sopwiths, Rumplers, Halberstadts, etc., are reviewed in this book. An excellent book to read, and of real value to Scale Builders and Book Collectors.

SPECIAL We will include with each book above a $4.95 Credit Voucher which you may use to purchase other books. You send only $4.95 for above book, we send the book, Credit Voucher and list of books that Credit Voucher may be used for. **$4.95** ☐

"PLANSBOOK" Contains over 1500 plans. Comes with $1.00 Credit Voucher..... **$1.00** ☐

"BOOK CATALOGUE" Latest books on W W 1 and W W 2, War Stories, Design and Engineering... **25c** ☐

Check off books above, send payment with order, add 25c postage, PRINT name and address in column of this ad.

GULL MODEL AIRPLANE CO. 10 E. OVERLEA AVE. DEPT. M6 BALTIMORE 6, MARYLAND

The Waco Glider

(*Continued from page* 10)

Silkspan and give it three coats of clear dope.

Next install the landing gear mounting eyelets, ¼" sq. skids, the towhooks, and the wing mounting dowels. This completes the fuselage.

Tail surfaces: The stabilizer is constructed in more or less a conventional manner. Pin down the leading and trailing edges and lower spar, add the ribs and then the top spar. When dry, cement the tip pieces in place. The elevator tips tilt upward as do the wing tips. (See front view)

The rudder needs little explanation. If the lightening holes are desired, they may be cut with an Exacto punch. Note that the bottom of the rudder is notched to fit over the stabilizer spars. Sand the tail surfaces thoroughly and cover them with tissue or Silkspan followed by three coats of clear dope.

Wing: The wing construction is fairly straight forward. Pin down the leading and trailing edges and lower spars. The spars must be carefully blocked up to allow for the undercamber. Now add the ribs and upper spars. When dry, cut the tips from ¼" sheet. If they cannot be bent to conform with the undercamber, make cuts, spanwise, 1/16" deep and ¼" apart on their upper surfaces. This should cure the problem.

Next the outer panels can be joined to the center section. Pin the center down on a flat surface and block up the tips to the proper diihedral height shown on the plan. When dry, cover the leading edge with 1/16" sheet as shown.

Now sand the entire wing thoroughly and cover with tissue or Silkspan followed by three coats of clear dope.

Landing gear and struts: Since the landing gear and struts are not recommended for flying they need not be built if so desired. The "stethoscope" gear, as it was nicknamed, and struts, are instantly removable.

The landing gear is bent from 1/16" music wire. The joints are wrapped and soldered. It is held in place between the landing skids and by eyelets beneath the wings. The struts are held in place by small pieces of tubing secured with pieces of fabric (elevator hinges).

Finishing and assembly: Slip the rudder between the center elevator ribs and cement securely. Now cement the assembly to the rear of the fuselage.

First paint the under surfaces of the wing, stab, and fuselage aircraft gray. When dry, the upper surfaces, landing gear and struts are painted olive drab. Use only as much dope as necessary to make it cover. Two or three coats should be sufficient. The windows are painted light blue and outlined with black india ink.

Flying: With the landing gear and struts removed, balance the model at a point 1/3 of the wing chord back from the leading edge by adding ballast to the nose. Fasten the rudder in the neutral position temporarily with a pin and try a few test glides over tall grass. Point the model in a slightly downward position so as not to stall it upon release. If the ship stalls, shim up the trailing edge of the wing about 1/32" at a time until a long flat glide is obtained. If the ship dives, raise the leading edge until the desired glide is obtained.

Release the rudder from the neutral position. Since the rudder surface is quite large very little offset is necessary for a normal turning radius. About 1/16" offset is enough for a start. This may be adjusted by trimming away the rudder stops.

For the first flight select a fairly calm day. Use a 75-100 ft. towline for test flying until you have the feel of the model. Adjust the model to fly in 75-100 ft. circles. If any stalling tendency is noticed shim the trailing edge of the wing until it disappears. Once the model is properly trimmed the entire length of the towline can be used.

It would probably pay to do a little experimenting with the CG and towhook positions since the optimum positions may vary from model to model. This ship will probably never win a contest; it was not designed to; but it can provide many afternoons of flying enjoyment.

Radio Control News

(*Continued from page* 27)

the circuits off when it is lifted from the water. Needless to say, we could go on and on concerning this boat but at least you have a good idea of what can be done with one channel of radio gear!

• • •

It's about time to think about winter flying. Most winter flying is done at about 10 degrees F above zero. The main problem is adequate power to the receiver, actuators, and even transmitters. Nickel-cad cells show up to advantage. A carbon-zinc cell will drop considerably around 35 degrees F and below. A lead-acid wet cell is more tolerant; however, they, too, will drop. The ni-cad cells are good for 65 below zero and at normal flying temperatures of down to zero, they maintain practically their full capacity. The new CG VO cells have just been received and, while it is too late to give a full account of them now, they are much improved. CG also has a new encapsulated assembly of four VO-500 cells, two in series each side of center. Incidentally, some modelers are encapsulating VO cells for better packaging. This could be a dangerous thing if not properly done. The exotherm heat during curing of the resin can damage the cells and improper potting or encapsulation can allow excessive pressure build-up if the cells inadvertently gas. The CG cells are assembled and the resin used is such that they will operate reliably in practically any environment.

• • •

Fig. 3 comes from Leonard Chioma of the Martin Company, Cocoa Div., Drawer M, Cocoa, Fla. Mr. Chioma was one of the pioneers in superhets for model work in this country and this circuit is his latest. A word of caution, however, in that this is not a construction article and, even if it were, it is not recommended for anyone without some radio experience. We are building this unit and will be able to give a better report when it is finished. Circuit-wise, it is a perfectly workable circuit. Mr. Chioma announces that the schematic, layout and alignment instructions are available for $1.00. There is much talk about transistorized super-hets; nevertheless, tube versions are able to match practically all points of a transistorized unit and, in many cases, are easier to build. This particular design uses a crystal-controlled oscillator which is spotted 455kc above the incoming frequency signal, i.e.: carrier-27.255mc, xtal-27.710; carrier-26.995mc, xtal-27.450. The relay current is zero with no signal, rising to about 15 ma upon receipt of a good signal. V_1 is a 5678 used as an RF amplifier, V_2 is a 2G21 used as a crystal oscillator-mixer, V_3 is a 5678 as an IF amplifier, V_4 is a 1AJ5 as a detector-amplifier and the relay stage, V_5 is a 1AG4. This receiver operates from a carrier-modulated tone of 400 to 1000 cps.

(*Continued on page* 40)

Modelers who

GOOD TTPW Dual Units

Ultimate in R/C fun, the WAG Dual system has stick-type control. Nearest thing to actually flying. Smooth proportional control of rudder and elevator and fail-safe operation of motor control. Dr. Walter A. Good personally selected components used.

Complete receiver kit with all tubes and relays. **$39.95**

Complete transmitter kit with tubes, xtal, cabinet **$74.95**

KRAFT
RECEIVER ACCLAIMED TOPS

Designed by Phil Kraft, this receiver has found immediate wide acclaim. This audio job features a current rise. It has been redesigned to better fit the more readily available CR60 transformer. Complete combo parts package with CK722, CR60, printed circuit board (undrilled), 6007, and all required components except batteries. Only **$19.95**

Printed circuit board individually screen, etched, undrilled	$1.75
IEI electrolytics 5 MF	.75
Wound tank coil	.85
CR60	1.63
Step-by step instructions	.25

ACE DEALERS

Alabama, Birmingham
SPIVEY'S 5 & 10¢ STORE
1236 Tuscaloosa Avenue

Alabama, Huntsville
HUNTSVILLE HOBBY SHOP
2100 Triana Blvd., S.W.

California, Carmichael
HOBBY CORRAL
2930 Fair Oaks Blvd.

California, Hollywood
BING'S GENERAL HOBBIES
7621 Sunset at Stanley

California, Los Angeles
COLONEL BOB'S
3707½ West Pico Blvd.

California, Lynwood
DUNHAM'S
10417 Long Beach Blvd.

California, Montebello
VICTORY HOBBY SHOP
1411 West Whittier Blvd.

California, Oakland
BOOT'S HOBBY HUT
6036 Telegraph

California, Riverside
DICK'S HOBBY & LEATHER
6574 Magnolia — Hillmer's

California, Riverside
7TH STREET MODEL SHOP
3743 — 7th Street

California, San Diego
HOBBYCRAFT
6093 El Cajon Blvd.

California, San Leandro
STEVE'S HOBBY CORNER
596 East 14th Street

California, Whittier
JACK'S HOBBYCRAFTS
223 West Philadelphia

Canada, Calgary, Alberta
UNIVERSAL HOBBY SUPPLY
603 — 8th Avenue West

Canada, London, Ontario
WATSON'S CYCLE CENTRE
1110 Adelaide St., North

Canada, London, Ontario
THOMPSON'S HOBBY & CRAFT SHOP
347 Talbot (South of King)

Colorado, Denver
BONNIE BRAE HOBBY & TOY
705 South University
Phone: PE 3-5879

Colorado, Denver
TOM THUMB HOBBY CENTER
7020 East Colfax

Connecticut, New Britain
HOBBY CENTER
11 Franklin Square

Connecticut, Newton
HOUSE OF FLOWERS & CRAFTS
Newton Shopping Center

Delaware, Wilmington
SIMPSON'S HOBBY SUPPLIES
2302 Washington

Florida, Fort Lauderdale
STAR HOBBIES
1000 East Las Olas Blvd.

ACE RADIO CONTROL
BOX 301, HIGGINSVILLE, MO.

Know Value . . . BUY ACE R/C KITS!

Designer Approved All-Transistor Receiver Kit

The TR 4.5, an all transistor 27¼ mc. receiver, is sure to appeal to the advanced radio control enthusiast. Its many fine features, including reliable operation over a wide temperature range, high current change, ultra economical battery life, is sure to win many friends.

To assist the advanced builder in making his unit, a complete parts package is being made available along with instructions.

All required components have been assembled and the total price is less than if the parts were purchased individually. The package includes three special transformers, a special Gem relay, four transistors, including a specially selected and tested A01 to insure operation at 27¼ megacycles.

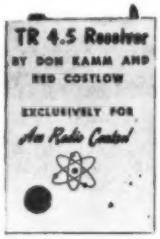
All coils are completely wound. A special ferrite core RFC is used to insure small size. Allen Bradley resistors and Goodall capacitors are used throughout.

A special light weight aluminated case is also supplied to make a compact unit measuring 2x2⅞x¾ in. Weight is slightly over two ounces.

The unit requires only 4½ volts of battery and idles at 2 mils, which upon receipt of modulated signal of 400 cycles at 100% rises 35 to 40 mils for really reliable operation.

Temperature checked from 130 down to 20 degrees and operation is reliable throughout this range. The TR 4.5 is not recommended for the beginner or the R/C fan with limited radio experience.

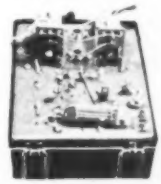
It is available only from Ace Radio by special arrangements with the designers, Don Kamm and Red Costlow. Another Ace exclusive designer approved kit. Complete parts package, nothing else to buy except batteries, only **$22.95**



Marcy Twin Simul System

At last, a single fool-proof dual channel simultaneous receiver and transmitter, designed by Marcy Inkmann, developer of the MarcyTone single and six channel receivers.

Now you can use either channel for push button or pulse flying since each channel may be pulsed simultaneously up to 20 cycles per second.



Marcy's Twin Simul receiver kit contains 6007 tube, three T0037's, two Gem 5K relays, two filters and all other required components. Weight is under five ounces. Unit measures 2½ x 3⅜ x 1⅞ inches deep. Only **$27.95**

Marcy Twin Simul transmitter — Dual-tone generators housed in a 3 x 5½ x 8 case use an MOPA-type RF section with a 3A5 two-tube amplifier. May be operated with push buttons or with dual pulser below for twin simul proportional control. Complete unit including transmitter and twin simul tone generators. **$37.95**

Marcy Twin Simul Tone Generators — Housed in aluminated case 2 x 4 x 4 for converting existing Marcy Tone equipment to dual operation. **$17.95**

Marcy Twin Pulsers — Stick control housed in small metal case plugs into twin simul tone generators for dual proportional flying. Motor control may be added, using either full on or full off. **$32.95**

OTHER DESIGNER APPROVED RC KITS

For several years Ace has worked with top R/C designers to produce exclusive designer approved control kits, in which the designers themselves have selected and approved components used. Here are some ACE R/C exclusives:

SEND FOR NEW FREE CATALOG #59 AF

Now in Kit Form . . . KRAFT TONE RECEIVER PARTS

Flash! New Kraft tone receiver parts! Due to popular demand, Ace has made available parts for this unit. They may be had separately or in a combo parts package.

PC Base reworked to hold the CR60 transformer, undrilled	$1.75	CK722	$ .99
5 mf IEI electrolytic	.75	6007	1.95
20 uh RFC	.45	Wound coil 27¼ mc	.85
CR60	1.63	PB #1	.10
		Complete combo parts package	19.95

WORTH Simpl-Simul Pulser

Now - go multi with proportional rudder and elevator with the Simpl-Simul by John Worth. Converts single channel CW or audio receiver and transmitter to give proportional rudder and elevator with true stick-type control. Receiver must be capable of following 10 cps.

Ace Simpl-Simul kits approved by John Worth are complete including 5% resistors and individually matched capacitors where required. Chicago Telephone pots are used for reliability and dependability. Metal parts are stamped and punched. 4x5x6 aluminum case is silk screened. Sigma 4F relay and 1AG4 tubes. Complete except for batteries.

Only **$21.95**

. . . READY — WILLING — ABLE TO SERVE YOU!

Florida, Miami
ORANGE BLOSSOM HOBBY SHOP
1896 N. W. 36th Street

Florida, Tampa
PHIL'S HOUSE OF HOBBIES
2306 Tampa Street

Illinois, Barrington
LANGE'S BIKE SHOP
120-A West Main Street

Illinois, Chicago
HOBBY HOUSE
5516 South Damen

Illinois, Des Plaines
MASTER HOBBIES, INC.
1410 Prairie

Illinois, East St. Louis
EAST SIDE HOBBY SHOP
2303 State Street

Illinois, Skokie
SKOKIE HOBBY HOUSE
8122 Lincoln Avenue

Illinois, Wilmington
HURSH HOBBIES
108 South Water

Indiana, Michigan City
VAIL'S HOBBY SHOP
429 Franklin Street

Iowa, Des Moines
HIGHLAND HOBBY SHOP
1061 — 6th Avenue

Iowa, West Burlington
JOHNSON'S MODEL SHOP
630 Ramsey Street

Kansas, Wichita
WEST WICHITA HOBBY CENTER
2022 Maple

Louisiana, New Orleans
HUB HOBBY SHOP
2618 South Broad Street

Maryland, Baltimore
LLOYD'S HOBBY HEADQUARTERS
2201 North Charles Street

Massachusetts, Cambridge
CROSBY'S HOBBY CENTRE
1704-A Massachusetts Avenue

Massachusetts, Chicopee Falls
BOB'S CAMERA & HOBBY SHOP
695 Gratton Street

Massachusetts, Mattapan
TOY & GARDEN CENTER
542 River Street

Michigan, Detroit
BOULLARD HOBBIES
13936 East Warren Avenue

Michigan, Detroit
COLUMBIA RADIO-HOBBY SHOP
8710 Van Dyke

Michigan, Detroit
JOE S HOBBY CENTER
9810 Wyoming Avenue

Michigan, Flint
FLINN'S HOBBY & MODEL SUPPLY
3302 Corunna Street

Michigan, Lansing (Holt)
THE CURIO SHOP
2423 North Cedar Street

Minnesota, Minneapolis
WOODCRAFT HOBBY STORES
903 West Lake Street

Minnesota, Worthington
GUY'S HOBBIES
100 East 12th Street

Missouri, Normandy
TOM'S TRAINS & HOBBY SHOP
8400 Natural Bridge Road

Missouri, St. Louis
CHARLIE'S HOBBY HOUSE, INC.
4611 Macklind Avenue

Nebraska, Lincoln
CHICK BARTLETT'S HOBBY TOWN
134 North 13th Street

New Jersey, Cliffside Park
LIONEL CITY
650 Anderson Avenue

New Jersey, Parsippany
RICH'S HOBBYTOWNE
U. S. Route #46

New Jersey, Red Bank
HOBBY HEADQUARTERS
62 White Street

New Mexico, Roswell
FRANK'S MODEL & HOBBY SHOP
813 North Washington

New York, Bronx
BROWN'S HOBBY CENTER
6031 Broadway

New York, Buffalo
BURD'S HOBBY HOUSE
3044 Delaware Avenue

New York, Buffalo
STERN'S HOBBY CENTER
3184 Bailey Avenue

New York, East Meadow, L. I.
LEE'S HOBBY SUPPLIES, INC.
2072 Front Street

New York, Forest Hills
FOREST HILLS HOBBY HOUSE
103-15 Metropolitan Ave.

New York, Rochester
HERMAN'S HOBBY SHOP
283 Driving Park Avenue

North Carolina, Charlotte
CENTER HARDWARE & HOBBY SHOP
Park Road Shopping Center

Ohio, Attica
J & J HOBBYHOUSE
122 North Main

Ohio, Cleveland 15
THE HOBBY HOUSE, INC.
800 Huron Road
Phone: SUperior 1-3210

Ohio, Cleveland
RED'S HOBBYCRAFT
7804 St. Clair Avenue

Ohio, Columbus
AAA HOBBY DEN
Great Southern Shopping Center
Town & Country Shopping Center

Ohio, Willoughby
KIRTLAND HARDWARE & HOBBY SHOP
Box 4002

Oklahoma, Lawton
LYONS HOBBY ART CENTER
632 "D" Street

Oklahoma, Oklahoma City
EUREKA ENTERPRISES, INC.
115 West Grand

Oregon, Portland
FLEGEL HOBBY SERVICE
4503 North Interstate

Pennsylvania, Allentown
BLOCH'S PAINTS & HOBBIES
22 North 8th Street

Pennsylvania, Beaver Falls
McCUE'S HOBBY SHOP
703 — 24th Street

Pennsylvania, Fogelsville
DON MOHR'S HOBBYLAND
Junction Routes 22 & 100

Pennsylvania, Philadelphia
ALLIED HOBBIES
21 South 16th Street
6607 Rising Sun Avenue

Pennsylvania, Philadelphia
RICHARD FRANCIS HOBBIES
5815 Woodland Avenue

Pennsylvania, Upper Darby
TODD'S
7036 West Garrett Road

Tennessee, Chattanooga
A & M TOY & HOBBY
3516 Ringgold Road

Texas, Amarillo
AMARILLO HOBBY HOUSE
118 East Seventh Street

Virginia, Arlington 3
ARLINGTON HOBBY CRAFTERS
625 North Glebe Road

Virginia, Richmond
THE HOBBY CENTER
3029 West Cary Street

Washington, Bellingham
HOBBY HIVE
209 East Holly

Washington, Seattle
GREENWOOD HOBBY SHOP
209 North 85th Street

Washington, Seattle
HOBBY CRAFT
The Bon Marche

Wisconsin, Green Bay
BAY CRAFT & HOBBY SHOP
517 Forest

Wisconsin, Racine
MARCY'S HOBBY SHOP
14th & Washington

Return all units for service to:
ACE R/C SERVICENTER
837 Eastern Avenue
Schenectady, N. Y.
Fine, Fast, Prompt Service — $2.00 minimum fee.

ACE R/C EAST
3029 W. CARY ST., RICHMOND, VA.

ACE RADIO CONTROL
BOX 301, HIGGINSVILLE, MO.

ACE R/C WEST
BOX 18, CARMICHAEL, CALIF.

ALL-NEW!

BY KAP-PAK

for ½ A's to 60's

KWIK KLIP 39c

V1	Kwik Klip, Only	39c
V1C	Kwik Klip, 12 On Card	39c
V2	Kwik Klip Cord Set	59c
V3	Battery Cord Set, Unassembled	29c
V4	Battery Cord Set, Assembled	39c

KAP-PAK PRODUCTS, INC.
156 WEST WALTON PLACE, CHICAGO 10, ILLINOIS

NO HELP NEEDED

with an "all purpose"

R/C Field Box

by Broadfield

PROVIDES—

self-service (stand-up) plane station for re-fueling & testing. "Hold-A-Plane" adjustable brackets support plane waist high. "Hold-Down" stakes for use on windy days. Also provides plenty storage room for your meters, batteries, fuel, etc. Legs fold into bottom; carries like a suit case.

EZY-to-Build: completely pre-fab KIT

- Precision-cut plywood panels
- Tapered bass-wood legs & anchor clips
- "Hold-A-Plane" brackets-shaped
- Hardware-N/P catches, etc. Packaged in Plastic reusable box
- Assembly plan, Color decal. & glue.

"Ideal GIFT for R/C Modelers"

Pre-Fab Kit J-7-F: $10.95 (add 35c P.P.) Assembled Box J-7-F: $17.95

ask your dealer or order direct

BROADFIELD AIR-MODELS
ASHLAND, MASS.

CLUB NEWS

Rex Welbaum, 212 S. Taft Avenue, Evansville, Ind. sent in photo of the Evansville RC Club. Club has about 20 members and a stable of 57 planes, including the PT-19 on rudder only, the Astro Hog and the ¼A job snuggled up along side the Hog. Most flying is done with a single-channel gear and plenty of fun is had by all. This proves that simple single-channel equipment still has a place in RC. Traffic light signals force the club to travel about 50 miles to an old USAF field. Anyone in the Indiana, Kentucky, Illinois area interested in RC is invited to contact this club. Man on the far right is Jim Veasey, the 1958 Junior Scale Winner.

• • •

Miss Nancy E. Perretti announces that, through the efforts of the Baychester Radio Control Club of the Bronx, the City of New York has consented to allow RC models to be flown from a designated area on Rodman's Neck in Pelham Bay Park. This is the first time such permission has been granted the modelers of the New York City area. One of the prime requirements for flying is that no plane go up if there is any question at all concerning reliable control. All users of the field must be AMA members. Maybe this will help set a precedent for other cities.

• • •

Mr. Charles Owen, Box 36, Salisbury, N.C. states he broke into RC as a rank amateur, never having built so much as a glider, ROG rubber job or Ukie. In addition to a few other models, Charles has built five Triple Threats (MAN) and is sold on them for rudder-only flying, stating that outside loops and inverted flying can be done with escapements only. Bob Rector of Salisbury now has his fifth ship and has installed an Orbit-8 in it, along with three Slim-Line servos.

• • •

The San Leandro Channel Masters have put out a Reference Directory Questionnaire to their club members, listing main interests, such as general electronics, receiver design, transmitter design, pylon, speed, etc. They inquire if anyone is interested in a co-operative project and if anyone has test equipment that other club members could use. How often have you wanted an AF or RF signal generator, a scope, a 'Q' meter or other instrument? Sounds like an interesting thing for other clubs to try.

This group has taken up the project of building a Club Training Plane. The purpose would be to have a plane available for actual flying by potential members and club demonstrators would check out the new flier. The proposed plane would be a Fox .15 powered Champion with a one-ounce tank, a CG Pioneer single-channel receiver, operated from nickel-cad cells. Probably two planes would be built, only one having an engine and associated gear, and it would be available on the 1st, 3rd and 5th Sunday of the month. Construction would be by club members and members on the field would supply fuel as needed. Insurance was the only point undecided upon.

• • •

RC'ers in our neck of the woods, Poughkeepsie, N.Y., are still predominantly single channel, although George Buso and Herman Rau have multi Cruisers. George sports a WAG TTPW system driving Tomoser Servos (no wag with these units) and Herm is still using his 5-channel Pierce receiver and Citizen-Ship transmitter. We have a Druin Turbulent just about finished, using WAG, and Kelly Day will put a WAG unit in an Explorer. Our new 5½-foot glider looks promising and the CG Pioneer receiver is working like a charm. The receiver, batteries and switch are mounted on a slide-in mount.

• • •

From the Vancouver Gas Model Club (Attn: C. R. Goguillot, 953 Kirkmond Cres., Richmond, B.C., Canada) Canadian RC'ers will be glad to know that the new RC regulations for 27.120mc, based on the regulations in Great Britain, will soon be released. The regulations will probably permit the buying of kits and quite a bit of multi-channel equipment, such as Bramco, Citizen-Ship, etc. Several CG RT1's are reported to be giving excellent results and the CG Pioneer is living up to all expectations. Bill Vernon, Robin Thornton and Hans Skadsheim do quite a bit of RC flying boat work, with Hans having a ¼A job built from Zaic's latest year book. One of the fliers had his antenna trailing in the water, however, the CG single-channel receiver picked up every command. Advantages of boat flying are, no thermals, no spectators in the way, and practically unlimited flying and take-off area.

• • •

The DC/RC Newsletter reports that the Club Bug airplane, described several is-

(*Continued on page 44*)

FABULOUS MODELS FOR CONTROL LINE FLYING

ASSEMBLE IN ONE EVENING!

THE "*Infant* WAGON"

A RUGGED ALL BALSA STUNT MODEL FOR THE LITTLE ENGINES!

SPAN: 20" $2.50

.02 TO .09 ENG.

MODERN!

THE "*Sportwing*"

COMBAT-STUNT FLYER

SPAN: 36"

.15 TO .19 ENG. $4.95

THE *Continental*

FULL STUNT AIR RACER

A THRILLING PERFORMER, BOTH IN LOOKS AND IN STUNTABILITY!

SPAN: 40"

.19 TO .29 ENG. $7.95

FREE FLIGHT

PAA DUMMY INCLUDED!

THE "CLIPPER"

A OUTSTANDING FREE FLIGHT TRAINER AND CONTEST WINNER TOO! BUILT IN LOOP AND SPIN CONTROL! EASY TO FLY!

SPAN: 34" .02 TO .074 ENG. $2.95

dmeco control line models include a wide variety of types, each is outstanding in its field, tried and proven designs flown by thousands of flyers! These TOP QUALITY kits include FULL SIZE plans with instructions. finest HAND PICKED materials precisely prefabricated plus hardware and covering materials.

deBOLT MODEL ENGINEERING CO.
"Home of Design-engineered Models"
3833 HARLEM RD. - BUFFALO 15, N. Y.

SEE YOUR HOBBY DEALER
IF NOT CONVENIENT ORDER DIRECT
INCLUDING 25c FOR POSTAGE

Jetco MODELS PUTS AMBROID IN KITS!

Staunch advocate for Ambroid cement, is the Balsa-World's Beard himself — Bill Dean, designer for C.A. Zaic Co. Inc. (makers of famous Jetco Models). "Since we use Ambroid exclusively for building our test models and know that there is nothing to touch it for sheer strength" — says Bill — "we naturally wish that all builders of Jetco kits would use it too. So we decided to include a 20 cc. tube of "Regular" Ambroid with our latest R/C Piper Super Cruiser kit and its two companion models, the Cessna 170 and Luscombe Silvaire (the latter being due for release shortly)." Internationally known as a designer, photographer and model mag contributor, Bill imported his own personal supplies of Ambroid into Britain, before he sailed to the States in '56, to join Christine and Albin Zaic at Jetco!

"REGULAR" AMBROID
1-3/4 Oz. Tube . 30¢
4 Ounce Tube . . 60¢
1 Pint Can . . $1.75
AMBROID SOLVENT
1 Pint Can . . $1.35

"EXTRA-FAST" AMBROID (Model Airplane Cement)
20 cc. Tube . . . . . 15¢
"SYNTHE-WOOD" (Ideal as a filler & for fairings)
4 Ounce Can . . . . 40¢

At last!! After FIVE Years of Research — NEW AMBROID PLASTIC CEMENT 28 cc. Tube . . . . 15¢

Jetco's Bill Dean and his new 40" span R/C Piper Super Cruiser. In every kit a tube of AMBROID!

In Every Field There's A Leader — In Cement It's AMBROID

AMBROID CO. • BOX 30 • WEYMOUTH 88 • MASSACHUSETTS

NEW

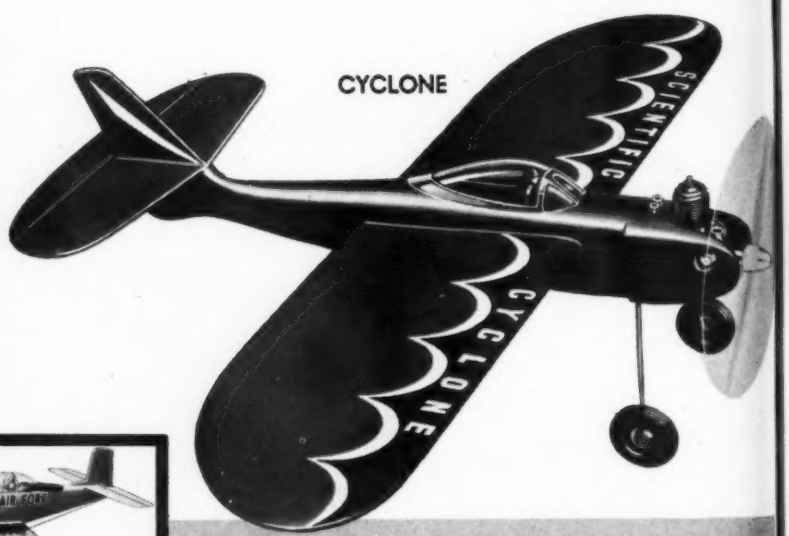
CESSNA 172

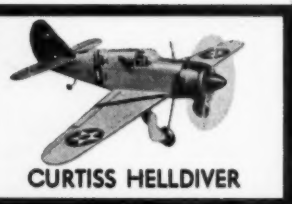
$2.95 each

SCIENTIFIC MODELS FOR KING-SIZE FUN!

CESSNA 172.....$2.95 Here's the newest Cessna private plane that you can fly yourself . . . by U-Control, of course, using just about any ½A gas engine (up to an .074). Performance-wise you'll find this model just about the snappiest you can fly—regardless of price. And—note the trim, slim, uncluttered lines of this scale beauty. Wingspan is a full 21 inches. The kit is all prefabricated . . . with a pre-carved balsa fuselage and all parts already cut, formed or shaped for you.

CYCLONE .....$2.95 U-Control fans . . . get ready to fly up a storm! You're looking at our brand new "CYCLONE" . . . 7 ounces (with the engine, that is) of sheer flying dynamite. The enormous wing area of this model (21" span) provides tremendous "lift" that lets you take off realistically . . . fly every stunt in the books . . . then land as softly as a feather. You can power your very own Cyclone with any small bore gas engine .035 to .099. And—assembly of the model is a cinch from the all prefabricated kit (with our pre-carved balsa fuselage, too).

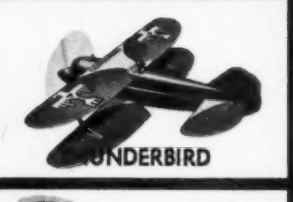




CURTISS HELLDIVER

BEECHCRAFT T-34 MENTOR

COMBAT MASTER



THUNDERBIRD

ARMY RACER

PIPER CUB RESCUE

MORE NEW RELEASES

See your favorite hobby dealer for these popular U-Control flyers . . . by SCIENTIFIC, natch! We call 'em our "super 6" . . . because they're super in every detail. Looks! Performance! Ease of Assembly! Quality Features! The Works! And the price is a tiny $2.50 each. Each kit comes super prefabricated with our exclusive pre-carved balsa fuselage and all parts formed or shaped for easy assembly. Most models have 18" wingspans. They power with gas engines .020 to .074.

$2.50 each

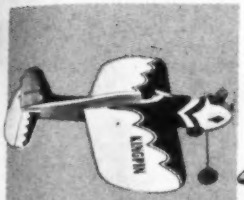
AT YOUR DEALER

...be specific, say SCIENTIFIC

If no dealer is available, add 25c (postage & packing) to cost of model

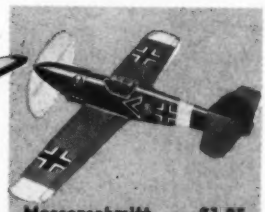
SCIENTIFIC MODEL AIRPLANE COMPANY

113M10 MONROE ST. • NEWARK 5, N. J.



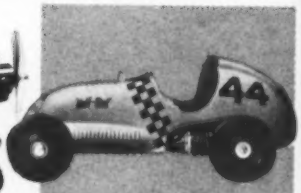
KINGPIN $1.69
SPAN: 14" For .020 to .049 Eng. Brand new profile stunt model with a big 80 sq. inch wing. U-Control flyer. All prefabbed.

AIRCOUPE $2.50
SPAN: 18" For .020 to .074 Eng. A real "beaut" of a model. It's authentic scale . . . for U-Control flying. Prefabbed. Carved fuselage.



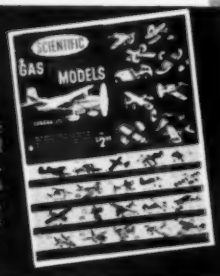
Messerschmitt $1.95
SPAN: 18" For .020 to .074 Eng. U-Control scale flyer of the ME-109 Ger. "Desert Fighter". Prefab model with carved fuselage, etc.

Gee Bee Sportster $1.95
SPAN: 18" For .020 to .074 Eng. Brand new U-Control scale model. An excellent performer. Kit is all prefabricated. Carved fuselage.



Half Pint Racer $3.95
LENGTH: 9" For "½A" Gas Eng. New, improved model. Speeds over 40 m.p.h. Direct wheel drive. Prefabbed formed body, rubber wheels.

SEND FOR OUR
FREE CATALOG
It's brand new! Just off the press. See your dealer or send a postal card for your free copy. Features all our exciting gas powered models . . . airplanes, boats and race cars. A must for every modeler.



GAS POWERED SCIENTIFIC MODELS

Greatest Values! Top Performers! Best Looking, Too!

Stuka Dive Bomber $2.50
SPAN: 18" For .020 to .074 Eng. Something new! This U-Control thriller drops bomb as you fly. Prefabbed with carved fuselage.

Stits "PLAYBOY" $1.95
SPAN: 18" For .020 to .074 Eng. One of our hottest looking and performing U-Control planes. Styled from Goodyear Racer. Prefabbed.

No. Am. "Texan" $2.50
SPAN: 18" For .020 to .074 Eng. Authentic scale model of the USAF AT6 Trainer. A top-notch "fly it yourself" model. All prefabbed.

P-40 Flying Tiger $2.50
SPAN: 18" For .039 to .074 Eng. Our popular U-Control model of this Curtiss World War II fighter. Prefabbed w/carved fuselage.

GOLDEN HAWK $2.50
SPAN: 18" For .020 to .074 Eng. Big expansive wing . . . extremely colorful model for U-Control flying. Carved fuselage, prefabbed.

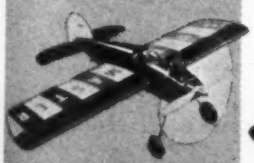
Torpedo Speedboat $2.95
For Gas Powered OUTBOARD Eng. Length 20", Beam 9"
Genuine mahogany veneer hull. A real speedster. All prefabricated.

"ELDORADO" $1.69
14½" Long. For Elec. Outbd. Mtrs. Fast, sleek speedboat — really modern w/wrap-around windshield & swept wing fins. Prefab.

Buckeye Jr. Cabin $3.95
For "½A" Eng., Electric Motors
Here's our sleek cabin cruiser. Has a removable balsa cabin, 14" carved balsa hull - 100% complete.

F4U-5N "Corsair" $1.50
SPAN: 18" For .020 to .074 Eng. Profile fly-it-yourself model of this famous WW II fighter. It's U-Control, flies like a dream. Prefab.

STUNT MASTER $1.95
SPAN: 18" For .020 to .099 Eng. Very popular ½A stunt plane. Highly colorful . . . terrific action. Super prefabricated kit.



Super Stunt Master $2.95
SPAN: 20" For .049 to .099 Eng. It's Big! Terrifically colorful, too. Deluxe U-Control stunt model. Carved fuselage, etc.

ZIG-ZAG $1.69
SPAN: 18" For .020 to .074 Eng. Fast! Colorful! Here's a red hot U-Control model with real get up and go! Prefab. Carved fuselage.

Piper Cub Cruiser $1.95
SPAN: 18" For .035 to .074 Eng. All prefabbed, carved balsa fuselage model. It's scaled after the famous "Cub" private plane.

LITTLE STINKER $2.95
SPAN: 16" For .020 to .074 Eng. "Pitt's Special" championship stunt flyer. Highly colorful model. All prefabbed kit.

RYAN TRAINER $2.50
SPAN: 18" For .020 to .074 Eng. Famous Ryan trainer that you fly U-Control. Prefabbed kit has a carved fuselage, etc.

I-Z TRAINER $1.29
SPAN: 18" For .039 to .074 Eng. Big value deluxe profile trainer with "jet fighter" styling for U-Control. Prefab w/bubble canopy.

LITTLE MUSTANG $1.95
SPAN: 18" For .020 to .074 Eng. Famous escort fighter model. Completely prefabbed. Features carved balsa fuselage, formed balsa wing.

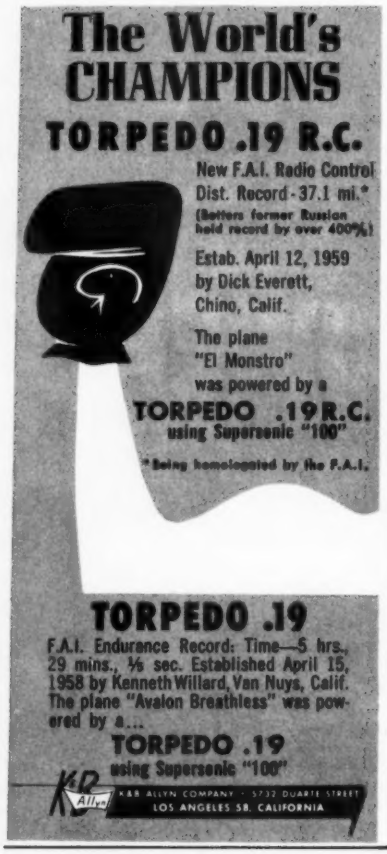
Cessna 182 Tricycle $1.95
SPAN: 18" For .039 to .074 Eng. Scale fly-it-yourself model of famous private plane. All prefab w/carved fuselage.

T-28 TRAINER $1.50
SPAN: 18" For .035 to .074 Eng. North American's U.S.A.F. standard training plane. Now you fly it U-Control. All prefab., profile model.

Piper Tri-Pacer $1.95
SPAN: 18" For .039 to .074 Eng. Scale U-Control flyer with a tricycle landing gear for safe landings. Prefab, carved fuselage.

AT YOUR DEALER . . . be specific say SCIENTIFIC

SCIENTIFIC MODEL AIRPLANE COMPANY
113 MIO MONROE ST., NEWARK 5, N. J.
If no dealer is available add 25¢ postage & packing to cost of model



CAUTION:

Do not fly control line models in the vicinity of electric power lines!

sues ago, flew fine with no trim adjustments. Over 25 sets of plans have been sold so far and the club is ready for more requests. The FCC is swamped with Citizen Band permits and the commission requests that you do not write to find out what has happened to your application. It takes as long to answer your inquiry as it does to make out the license and at the rate of 3000 applications a month it will just take a little time to get through them.

• • •

The 1st Annual Ford Electronics Tri-Modelers RC meet was held on May 30 and 31 in Tecumseh, Mich. Top modelers from the east and the midwest had perfect flying weather, plus paved runways, workship areas, catering service and CAP chase planes and cars. Joe Anthony of Royal Oak, Mich. took 1st Place in the Novice-Multi class. However, Joe used a Galloping Ghost system *without* engine control and then came back to place 2nd in Unlimited Pylon against 8-channel Astro Hogs using 45's. Joe used a K & B 15 in his molded fibre-glass fuselage job and a Kraft receiver. Anyone wishing more information on this club may contact: J. F. Zimmerly, Manager; Ford Planning and Scheduling Dept., Styling Office; 21175 Oakwood Blvd, Dearborn, Mich.

NEW ITEMS

The Yardney Silvercel now has a brother, the Silcad cell. The line of new Silver Cadmium cells ranges in size from .1 to 300 amp-hours. Characterized by their long life, high power and freedom from maintenance, these cells provide a flat-voltage discharge over a wide range of temperature. Field results to date indicate the cells are capable of 500 full cycles (complete charge-discharge) and 3,000 shallow cycles (partial discharges). Yardney Electric Corp., 40-50 Leonard St., NYC, can furnish additional information and prices on these and other cells and batteries.

• • •

The Du-Bro Products, 8121 N. Olcott Avenue, Niles, Ill. offers a new aid to modelers in the form of "model fillets." We have not seen these fillets but it is claimed they can be bent and worked to any shape and will provide sturdy reinforcement. Usable as tail, rudder and wing fillets, the material is also said to be usable all-over on RC jobs.

• • •

Micro Switch, Freeport, Ill. has a new miniature DPDT toggle switch, measuring ¾" square and weigning but 4.5 grams. Gold plated contacts and high contact pressure make for a reliable unit. A threaded bushing provides single-hole mounting. Electrical rating is 7 amps, resistive load, and in case you're interested this is good up to 75,000 feet. Anyone for an altitude attempt?

• • •

Alpha Tech Products, Box 111, Appleton, Wis. claims unusual selectivity for the super-regenerative R300 receiver. No interaction is obtained with one receiver tuned to 26.995mc and the other to 27.195mc, with matching T300 transmitters. Using a 6007 tube detector, the circuit idles at about .8ma and has a rise to 5ma upon receipt of signal. Will follow fast pulsing and the relay features silver-paladium contacts with arc suppressors for long trouble-free life. We have heard of good reports from this gear from some of the boys in the middle west.

• • •

If you think you have a small 1¾" or 1" meter, how about a ⅜" unit? The Alco Electronics Mfg. Company, 3 Wolcott Avenue, Lawrence, Mass. has such a meter with a ⅜" diameter barrel and a ⅜" clear plastic front. Actually, this meter takes up no more space than an ordinary pilot lamp assembly. Available in the following ranges: 0-200 and 0-500 microamps DC; 0-15, 0-100 volts DC and 0-1, 0-5, 0-10 and 0-20 milliamps DC; also 0-150 VAC. Price, $3.95.

Guided Missile

(*Continued from page* 28)

of those all-night bull sessions that modelers are famous for. During this session the airfoil was brought up and its possibilities for use on a combat plane were kicked around. The idea had been haunting me ever since, so I finally worked out this design.

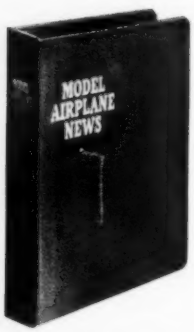
I am convinced that the airfoil is so good that, before long, it may be the rule rather than the exception in the combat field. Some of its better features are: exceptional maneuverability, easier construction due to the straight lines, the fact that it can be built flat on the work table, and its greater strength.

Another feature of the plane is that the wing and engine mounts are built up into one unit making construction very fast and easy, and the plane very strong.

The Missile has a wing span of 35 inches and a chord of nine inches which gives it a wing area of 310 square inches. It uses a minimum of wood to keep cost and weight down and, by using the leading edge and motor mount construction shown, the plane has proved to be very strong. Ships built so far have weighed between 16 and 19 ounces which gives a very light wing loading. The original planes were powered with Johnson .35's using pen bladder pressure tanks. However, any 29 or 35 will work fine.

Another thing you will like about this plane is that it isn't as critical to adjust and balance as most short-coupled jobs. Some of the kids in our club who have had a lot of trouble with wings and short-coupled jobs being too sensitive have flown this plane right off the board with no trouble at all.

(*Continued on page* 46)



AVAILABLE NOW!

Here is the Model Airplane News binder you have been waiting for

- Manufactured to our strictest specifications
- Holds 12 issues — a full year's supply
- Opens flat as a bound book, yet loose-leaf in operation
- Rod-type binder with rods that lock in place in ends
- Doubly reinforced spine for longer life
- Extra heavy binder's board covers for durability
- Extra heavy vinyl "saddle" covering for lasting beauty
- Stamped with name of magazine on cover and spine

These are the best quality available, custom-fashioned at the low price per binder of $3.50

Kalmbach Publishing Co., Dept. MAN, Milwaukee 3, Wis.

I want _____ of your new type binders for Model Airplane News. Enclosed is my ( ) check ( ) money order for $_____. I understand these will be shipped to me postpaid.

Name _____

Address _____

City, Zone, State _____

WRIGHT CYCLONE Action Model Cyclone 9 C9HE RADIAL AIRCRAFT ENGINE

Authentic super-detailed and fascinating action model of the world's most famous aircraft engine. It is the latest version (C9HE-1525 horsepower) in a long series of nine cylinder Cyclones. This is the engine that has powered such famous aircraft as the Douglas DC-3, B-17 Flying Fortress, Grumman F4F Wildcat and more than 30 others, including the newer Grumman "Sub Killer."

Model with stub prop stands 5½ inches high in its adjustable service rack dolly as pictured. Molded in 4 colors plastic. Requires no painting. Amazing detail in every part including finned cylinders, crank case, push rods, ignition, intake manifold, magneto, carburetor, generator, starter, fluid pumps, etc. Scaled 1 inch to 1 foot from official engineering drawings supplied by Curtiss-Wright Corporation. Eight page illustrated book on the real Cyclone engine, describing engine, its uses and operation, included in kit. Elaborate picture plans make assembly fascinating and simple. Special instructions for electrifying, if desired.

The Cyclone is a must for every model fan. It is the finest of all hobby projects—a real collector's "show piece"—a visual education and shop training aid. See the Cyclone at your favorite store. Get a kit for the most satisfying and fascinating hobby fun you every enjoyed.

Highly Detailed Parts · Molded in 4 Colors · No Painting
Stub Hamilton Propellor · Adjustable Service Rack Dolly
Pictorial Assembly Instructions

Informative Cyclone Illustrated Book Included in Kit.

Famous Engine of Famous Aircraft in a Magnificent New All-Plastic

ACTION MODEL

Monogram
Hobby Kits FOR FAMILY FUN

Complete Kit Only **$1.98**

Action!

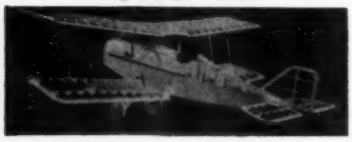
Note cutaway cylinder which shows piston and connecting rod in motion as prop is revolved by hand or when powered. Model can be electrified with miniature motor and flashlight battery. Instructions included.

Out of the Blue—
2 GREAT NEW MODELS

THE
WIZARD
Kit FS-7
Wing Span 54"
For .19 to
.45 engines
$12.95

Flying The Wizard with multi-channel radio equipment is almost like sitting in the cockpit yourself! Engine speed control plus Aileron, Rudder and Elevator controls give you full range maneuverability *from the ground!* Steerable tail wheel and brake give you spot landings. Breakaway wings prevent serious damage in hard landings. Performs acrobatics with ease. A beautiful performer with single channel radio equipment, and just perfect for sport-free-flight and control-line flying. Easy to build . . . parts are die-cut and/or shaped, internotched for accuracy. Large super-detailed plans.

MINIATURE AIRCRAFT
1½ SCALE R.C.



S.E. 5A **$12.50 P.P.**

40½ SPAN 600 SQ. IN. AREA

SIMPLE RUGGED CONSTRUCTION
PRECUT PARTS, SCALE WHEELS,
FULL DECALS, HARDWARE ETC.
FOR R.C. OR FREE FLIGHT
.09 - .15 POWER

CURTIS MODEL PRODUCTS CO.
P.O. BOX 293 STATEN ISLAND
8, NEW YORK

YOU'RE ALWAYS IN GOOD HANDS

When You Buy At
The Store Displaying
This Dealer Emblem
(Dealer inquiries invited)
Write To:
CRAFT, MODEL & HOBBY INDUSTRY
30 East 29th St. New York 16, N.Y.

It flies very well in the wind and upwind maneuvers in a good breeze are no trouble. It is very stable, allowing eyes-off flying yet responds instantly to every command. It is smooth to fly (much like a stunt ship) but much, much faster and very wicked. You really have to be on your toes to fly it with a real hot combat engine on pressure. Without a streamer it will do well over 100 mph. The faster it goes, the better it maneuvers.

In the first few weeks of its existence the plane has become very popular locally. The Missile can really take care of itself in the combat circle and I will put it up against any plane—bar none. I believe it will chop-chop with any of them and come out on top most of the time.

There is one thing that I would like to mention briefly that has been overlooked very often in combat and that is the engine. As a rule, in today's combat competition a first class plane cannot win by itself. It also takes a first class engine. I have had many guys ask me why their plane didn't fly like mine. My usual answer after checking a plane and seeing that it is well built and about the same weight as mine is, "You've got me." But once the engine is started the answer is apparent. Many guys use an old engine for combat that I would only use as a Sunday afternoon sport engine.. If you plan to be a competitor in combat and mean to do well in the event, by all means use an engine and fuel setup that will do yourself and your plane justice. Notice the winners at almost any combat contest and you will see that they not only have a good plane; they have an above-average engine and reliable fuel system as well.

Before you start building, look the plane over very carefully and get everything understood. The construction is a little unusual but, once you have built one of these planes, I believe you will find that it is easier and faster to build than most combat jobs.

Begin construction by cutting out the ribs and cementing them in place on the ¼" spars. If you intend to plank the leading edge, cut all ribs the same as the plank ribs (at center section) from the spar farward. Before the cement has set, cement the bottom trailing edge piece in place and pin the wing to your building board with about ¼" of the trailing edge extending over the edge. The wing should be flat on the board from the spar back. If you will build it in this manner you eliminate almost all warps. Now cement the top trailing edge piece in place. Use clothespins to hold the trailing edge together to get a strong joint.

Cut the motor mount block from hard balsa, pine, or bass and cement it in position between the center ribs. Cement the leading edge in place and allow the wing to dry.

Cement the hardwood motor mounts in place using Elmers or a similar glue and wrap with rubber bands to get a better joint. While this is drying, cement the wing tips, tip braces, and plywood bellcrank mount in place. Install the wing tip weight, bellcrank, leadouts, leadout guides and the pushrod and plank (sheet) the wing center section. Install the tank and plank the tank compartment—also the lead-edge if you wish to do so. The leading edge planking also can be held with clothespins at the front.

A list of commercial tanks that can be used is given on the plans. Modify the tanks as shown. I also suggest that you turn the vents into the air stream as this

By Sterling MODELS

BELFIELD AVE. & WISTER ST.
PHILA. 44, PA.

When it's Made by Sterling, it's Unconditionally Guaranteed ...in Writing!

RINGMASTER IMPERIAL

$795

Kit S-18 • Wing Span 52½"
For .29 and .35 engines

Another Ringmaster joins our world-famous family of all-time favorites. The big new Ringmaster Imperial tops them all in contest performance, looks, and ease of assembly. If you've built and flown any of our other Ringmasters, you know what you can expect in flying performance . . . and the Ringmaster Imperial gives you even more! This is a full contest stunt model . . . a real winner! Masterfully engineered for light, strong construction. Easy to build with die-cut and/or shaped balsa parts. Kit includes full-length carved fuselage top, formed landing gear, decals, simple assembly plans, etc. . . .

Please send me catalog showing 10 Control Line Scale Model Kits, 7 Radio Plane Kits, 18 Stunt Control Line Models, 9 Auto-Magic Pilot & Free Flight Kits, 18 Boat Kits, Electric Motors, and a Host of Accessories
Enclosed is 10c to cover handling and mailing.

STERLING MODELS, DEPT. S
Belfield Ave. & Wister St., Philadelphia 44, Pa.

Name_____
Address_____
City_____ Zone____ State_____

gives a pretty constant pressure on the fuel and will give a more consistent engine run. If you intend to use a pen bladder tank, cut the tank ribs as shown on the plans and put a piece of 1/16" balsa between the spars to make a sealed compartment. Plank the bottom of this compartment and cut a hole just below the leading edge large enough to insert the pen bladder. Fuel proof the compartment real well with fuel-proof dope. An alternate method of doing this, and the one I prefer, is to brush Elmers glue, thinned with a couple of drops of water, inside the compartment. Cut a piece of 1/16" balsa to fit the top of the tank compartment. Brush Elmers on the inside (two or three coats) and glue in place using a fuel-proof glue.

Cut the fuselage from a piece of firm ⅛" balsa and cement it in place on the wing. Notice that the fuselage has a small extension on the bottom that goes down between the two center ribs. Cut a small opening in the top planking so this will slip between the ribs. Now cement the ⅛" scrap balsa fairing to the bottom of the wing and round the wing leading edge as shown on the side view on the plans.

Using Perfect blind mounting nuts, mount the engine as close to the leading edge as possible. For calm weather mount the engine straight away or with just a small amount of offset. If you have to fly in windy weather, increase the out-thrust by putting washers under the front of the mounting lugs.

Cut the nose block from soft balsa, carve to preliminary shape, hollow to clear engine and cement in place. You can use ⅛" plywood, but I prefer the block as it has proven stronger.

Sand the entire plane with medium and then fine sandpaper.

Cut the stabilizer and elevator from ⅛" hard balsa, sand to shape, install control horn, hinge together, and cement in place on the fuselage. When this is dry, hook up the pushrod, limiting the elevator to 30 degrees movement in each direction. Make sure the controls are free and do not bind.

Cut the rudder from 1/16" plywood or ⅛" balsa, sand to shape and cement in place.

The plane is ready to cover. For maximum strength I suggest silk or nylon. However, nylon adds a lot of weight. You may also fiberglass the nose and center section. If you do not use fiberglass, cover the nose with silk or nylon.

I finish the wood surfaces of my planes with one coat of sanding sealer and two or three coats of clear or transparent dope with light sanding between coats. Put just enough clear dope on the wing to give a smooth, fuel-proof surface. Take it easy when doping the model because a lot of weight can be gained here, especially if you use colored dope. Use a few drops of castor oil in the clear dope to prevent over tightening of the covering material and to help prevent warps.

Before flying your plane, check it for warps and, if any exist, remove them by holding the warped portion over steam and twisting in the opposite direction.

Unless you are en experienced flier, pick a calm day for test flying. Take it easy on your first flights until you get the feel of the plane and then let her rip. This plane should furnish you with many flying thrills and I'm sure the airfoil will be a controversial subject wherever you go.

Take your Guided Missile and attend the next contest in your area. Enter combat and blast off toward some of those trophies!

The ONLY One Of Its Kind and it is made by Citizen-Ship

Actuator (Servo) Kit

With the Citizen-Ship Actuator Kit, you can build any one of FOUR servos. You construct a basic unit which you can convert, as your models demand, by simply changing one of four printed circuit discs furnished in the Kit. A Citizen-Ship Actuator will not become obsolete! Weighs 3 ounces . . . low current drain . . . fast and powerful action . . . mounts in any position.

4 Built-Up Models Available

$14.95 EACH

HRH use with C-S MSR-8 Receiver
2R2H 2 positions; 2 neutral
1R3H 3 positions; 1 neutral
3R 3 positions

Send For Free Catalog Sheets
CITIZEN-SHIP RADIO CORP.
820 E. 64TH ST. INDIANAPOLIS, IND.

24-HOUR SERVICE

MODEL AIRPLANES
CRAFTS TOYS
MODEL RAILROADS

Your BIGGEST SOURCE OF SUPPLY . . . our GIANT new Catalog with over 300 pages. Send for it on your letterhead, we sell to dealers only, 100% wholesale, fast service on all orders.

DEALERS HOBBY SUPPLY

P. O. Box 10353-B
2009 Farrington
Dallas, Texas

P. O. Box 506-B
510 E. Sixth St.
Des Moines, Iowa

Dept. KC-B
1120 E. 13th St.
Kansas City, Mo.

Dept. M-B
577 Scott St.
Memphis, Tenn.

Bonner

ANNOUNCES THE
ALL NEW
DURAMITE
MULTI-SERVO
$12.95

VOLTAGE: 2 TO 4½
BATTERY DRAIN:
NO LOAD 200-300 MA.
WINDING 3 OHM.

WEIGHT: 2½ OZ.
OVER 4 LBS. THRUST

FEATURING OUR OWN MOTOR ESPECIALLY DESIGNED FOR SERVO USE—NOT AN IMPORT!

BALL BEARINGS – 93% SILVER BRUSHES
TURNED COMMUTATOR – NYLON HOUSINGS

TEST MODELS OPERATED FOR OVER ONE QUARTER MILLION COMMANDS!

AVAILABLE AT YOUR DEALER NOW!

BONNER SPECIALTIES 2900 Tilden Ave. Los Angeles 68, Calif.

GEM
MICRO

Weigh less than 1/2 oz., Size: 3/4 H., 17/32 W., 1-1/16 L. Mounting: One screw; Coil: 5000 ohms; 7,500 & 10,000 ohms at extra cost.

Deluxe adjustable
NEW! SILVER PALLADIUM Contacts

RC Experts prefer Gem's MICRO version . . . you *adjust in the field!*

New contacts supress arcing . . . won't tarnish, corrode or oxidize. Harder, wear better. Resist "welding" or "sticking". Extra tie point mounts. Highly sensitive...crash resistant construction. Still $4.95

JAICO Products At Your Dealer

RELAYS 1921 W. HUBBARD CHICAGO 22, ILL.

Foreign Notes

(*Continued from page 2*)

as usual, by Gadget Gibbs, using a Carter Special motor, at 115.3 mph. Only 3.6 mph behind was Johnny Hall with a stock O.S. Max 15 powered model. Hall, incidentally, is also getting some encouraging results with delta-wing ships, one of which was demonstrated after the meet.

Stunt was won by Australian Brian Horrocks (on a two-year visit to Britain) with a large ship powered by the new Australian Glo-Chief 49 motor. The FAI team-race resulted in another victory for perennial winner Dick Edmonds in this Oliver Tiger dominated event.

In the free-flight gas contests, Arthur Collinson's O.S. Max-15 powered Packhorse won the PAA-Load contest comfortably, while George French's Torp 15 Ramrod took the open power event.

FINLAND

At this year's Chrysler-Plymouth sponsored meet at Helsinki, there were some spectacular happenings in team racing. In the FAI teamrace, Ossi anl Osmo Niemi clocked 4:32 for the 10 kilometers to win —an average of over 82 mph *including* pit-stops. The model, its Oliver Tiger Mk. 3 turning a 7/11 prop (more usual size is 7/9), flies 55-60 laps on the regulation 10 c.c. (1/3rd. oz.) tank, actual flying speed being around 93-94 mph.

In Class B team-racing, the fastest was Jouni Valo's ship, which, powered by a Fox 29R with special venturi, hit no less than 118 mph, flying 35 laps on a 1-oz. tank. Unfortunately, this model crashed in an eliminating heat and the engine was completely wrecked.

SOUTH AFRICA

The STARS radio-control club, centered at Johannesburg, now have their own flying field, which is completely interference-free—from spectators, C/L and F/F, that is . . . Somewhere near a square mile in area, quite flat and thickly grassed, it has a graded 300-ft. square in the center for take off. These sort of facilities can only be paid for by a relatively wealthy club and, in addition to normal dues, there is an entrance fee to the STARS of $14.00. Every week-end there is a turn out of 12-20 members.

Most South African RC models currently flying are American designs. Very few British. Pylon racing to AMA rules is expected to start soon. Favored engines for RC are K&B, Veco, O.S. and Enya. Equipment mostly American, but some German stuff (notably OMU) now being tried.

AUSTRALIA

An essay at the Soviet held altitude record has been reported from Australia. Victorian modeler, Colin Stones achieved a radar-tracked height of 14.325 feet with an Enya 15-D powered, 6-ft. span model. At that height (still a couple of thousand feet short of the Russian record) and at a range of nearly 7 miles, the Army radar unit lost track of the model. At the moment when contact was lost, however, the model was still climbing steadily, having been in the air for 41 minutes. Enough fuel for one hour's running had been put in at the start.

Tony Farnan quotes some interesting developments in Class B team-racer design. Cast magnesium alloy (for engine pan) and fiberglass (fuselage shells and motor cowl) are now being used. Medium aspect ratio wings of a relatively thick symmetrical section, having tips washed out, have proved best. With the widely used O.S. Max 29 motor, 9/7 and 9/8 props seem to be the most favored size, with blades thinned down as much as possible. Speeds

(*Continued on page 50*)

It's Here! 1959 LEE'S CATALOGUE
COMPLETE LISTINGS

• PLANES
• BOATS
• ACCESSORIES
• ENGINE PARTS AND PRICE LIST

IF YOU DON'T HAVE THIS CATALOGUE . . . YOU DON'T KNOW WHAT'S MADE!

OVER 150 PAGES

ONLY 50c

REFUNDABLE ON FIRST $10.00 PURCHASE!

LEE'S FINE PRODUCTS

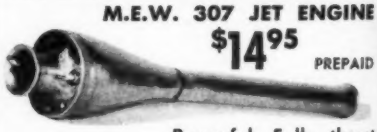
	4 Oz.	Pint	Qt.	Gal.
• LEE'S GLOW FUEL		.79	1.40	4.95
• LEE'S CLEAR DOPE	.40	1.20	2.19	8.50
• LEE'S COLORED DOPE	.45	1.50	2.89	10.95
• LEE'S CEMENT	.50	1.79*	3.19	10.98
• LEE'S GRAIN FILLER	.40	1.20	2.19	8.50
• LEE'S BALSA PUTTY	.79	2.98		
• LEE'S KWIK KLEEN		.59		
• LEE'S THINNER	.35	.90	1.65	5.25

All products are available at a Lee's approved dealer agency or directly from us. Send us your dealer's name and location with your order so that we might contact him.

2072 FRONT STREET, EAST MEADOW, L. I., N. Y.

M.E.W. JET ENGINES

M.E.W. 307 JET ENGINE
$14.95 PREPAID



Powerful, 5 lb. thrust
3 in. dia. x 20½ in. long, burns gasoline, complete with spark plug.

M.E.W. 601 JET ENGINE

6 in. long, easy to assemble, $1.95 prepaid
Burns gasoline. Complete, absolutely nothing else to buy.

MINNESOTA ENGINE WORKS
5600 N. Hamline Ave., St. Paul 12, Minn.

CLUBS CLUBS

Are You Paying Too Much For Your Racing Fuels?

Send for our special information and prices on model fuels.

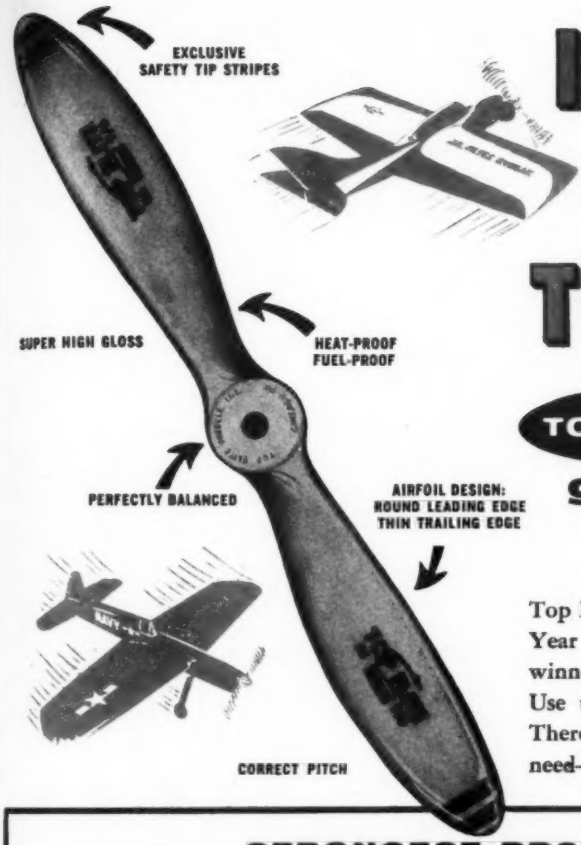
Prices start as low as $2.50 per gallon

ALL FUELS GUARANTEED

Write on your club stationery for our money-saving offer.

To Dept. AN

WIL-CAP CO.
10215 S. San Pedro St.
Los Angeles 3, Calif.



IT'S WHAT'S UP FRONT THAT COUNTS

TOP FLITE PROPS get maximum thrust from any engine!

Top Flite props put your plane out in front—keep it there. Year after year, Top Flite props power more Nationals winners than any other prop. Flying starts with the prop. Use the best — use TOP FLITE nylon or wood props. There's a TOP FLITE or POWER PROP for every flying need—84 sizes are available from which to choose.

STRONGEST PROPS MADE!

TOP FLITE NYLON PROPS

These marvelous props were perfected after years of intensive work in design and development! They are flexible, heat-proof, fuel-proof and have a super high gloss finish. TOP FLITE nylon props are perfectly balanced to give maximum aerodynamic efficiency. They deliver the best all around performance of any prop!

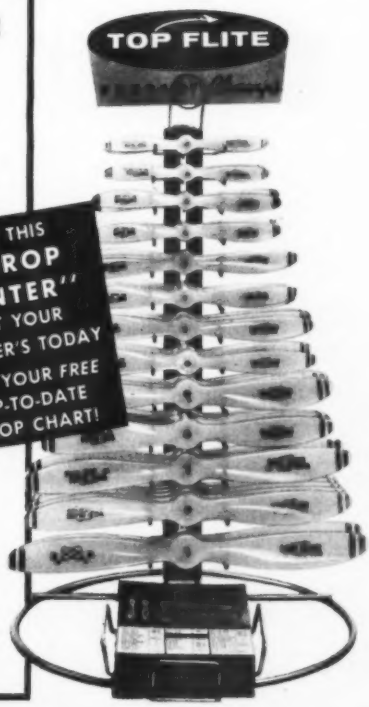
SIZE	EACH	SIZE	EACH	SIZE	EACH
5¼-3	.25c	7-4	.40c	9-6	.85c
5¼-4	.25c	7-6	.40c	9-7	.85c
6-3	.25c	8-4	.60c	10-3½	.85c
6-4	.25c	8-6	.60c	10-6	.85c
		9-4	.85c	11-4	1.00

TOP FLITE WOOD PROPS — POWER PROP

WIDE BLADE PROPS — NARROW BLADE PROPS

All precision-made from select hardwoods—accurately finished and balanced for true, high performance flights.

TOP FLITES: 4½-3, 4½-4, 4½-5 POWER PROPS: 4½-6, 4½-7	15c each	POWER PROPS: 7-4, 7-6, 7-8, 7-9, 7-10½, 8-4, 8-5, 8-6, 8-8, 8-9, 8-10½, 9-6, 9-8, 9-9, 9-10½, 10-6, 10-8	25c each
TOP FLITES: 6-3, 6-4, 6-5 POWER PROPS: 5¼-3, 5¼-4, 5¼-5, 5¼-6, 6-3, 6-4, 6-5, 6-6	20c each	TOP FLITES R/C: 11-3, 11-4, 11-5, 11-6, 11-8, 12-3, 12-4, 12-5, 12-8, POWER PROPS R/C: 11-3, 11-4, 11-5, 11-6, 11-8, 12-3, 12-4, 12-6, 12-8	35c each
TOP FLITES: 7-3, 7-4, 7-6, 8-3½, 8-5, 8-6, 8-8, 9-4, 9-5, 9-6, 9-7, 9-8, 10-3½, 10-5, 10-6, 10-8	25c each	TOP FLITES R/C: 13-5½, 14-3, 14-4, 14-6	40c each



SEE THIS "PROP CENTER" AT YOUR DEALER'S TODAY GET YOUR FREE UP-TO-DATE PROP CHART!

TOP FLITE MODELS, INC. 2635 S. Wabash Ave., Chicago 16, Ill.

ASK YOUR DEALER ABOUT TOP FLITE'S HIGH-FLYING GAS MODEL KITS — THE NOBLER — FLITE STREAK — JR. FLITE STREAK — PIPER CUB — RASCAL — ARROWJET 24

SAN FRANCISCO CABLE CAR

REPRODUCED FROM ACTUAL BLUEPRINTS SUPPLIED BY THE MUNICIPAL RAILWAY OF SAN FRANCISCO

All aboard . . . and relive the past as you see this authentic scale model take shape! Relive the breathless moments, the excitement of history in the city of the Golden Gate. Every detail so real you'll want to jump off the footboard and help them turn it around for the return trip.

Get aboard . . . and take your place in history in the making!

- 85 perfect parts molded in true base color
- Five color HI-FI decals
- Detailed interior appointments
- Operating trucks
- Cable gripper levers
- Full brake details
- Hand rails and headlights
- Key pin assemblies

Send for complete full color catalog on other fine HAWK MODELS

A Historical Masterpiece **98c** Retail **Model No. 517-98**

SCALED 1/4" TO 1 FOOT

hawk MODEL CO.
4600 North Olcott Ave.
Chicago 31, Illinois

NYLON

Because **NYLON** protects and maintains the superb thrust power of GRISH-Engineered propeller contours at *all* speeds . . . it's the **BEST** for longer, carefree flying! Ask for Grish **TORNADO** Propellers in most sizes of 3 blades, 2 blades, both tractor and pusher.

TEMPERATURE-PROOF
UNBREAKABLE
SMART COLORS
HOLDS SHAPE
FUEL PROOF

2 Blade Tractor

7-4 7-6	40¢
8-4 8-6 8-8	60¢
5-3 5-4 5½-3	
5½-4 6-3 6-4	25¢
9-4 9-6 9-7 9-8	
10-4 10-6	85¢
11-4 11-6	$1
RC 12-4	
12-5 12-6	$1.50

2 Blade Pusher

5½-3 5½-4	
6-3 6-4	25¢
8-6	85¢
9-6 10-6	$1

3 Blade Pusher

6-3	50¢

3 Blade Tractor

5-3 5-4 6-3 6-4	50¢

St. John 1, Indiana **GRISH BROTHERS**

with medium rated fuels (up to 10 percent nitro) are around the 45-50 laps at 100 mph mark.

WEST GERMANY

Attendance at the annual International Flying Wing contest was poor this year. Held at Kaltenkirchen/Holstein, only German and Dutch teams competed. The event was again won by last year's winner, Wolfgang Zwilling of Stuttgart.

Industry news from Germany is that Walter Fritsch, manufacturer of the deservedly popular little WAF-1 diesel, is working on a new .06 engine, as is Benno Schlosser. Johannes Graupner has introduced a new and interesting Taifun marine power unit called the Delphin. It comprises a Tornado or Blizzard .15 diesel, with exhaust manifold, water-jacketed cylinder, flywheel and recoil starter unit, the whole being installed in a special cast mount, ready for fitting in a hull, with spiral prop and shaft.

IN BRIEF . . .

Japan . . . The entire range of Enya engines (eight models from .06 to .60) are now being made with variable-speed throttles.

England . . . Neat small jet speed job has been built by Kevin Lindsey of Hayes (London) club, around the Japanese 6.9 oz Tiger M-2 pulse-jet. Very clean, model has wings skinned with .010 dural, stab of .028 dural and an annular fiberglass tank forming an extended intake cowl. Tiger M-2 goes very well. Speed of around 120 expected.

England . . . First diesel to approach glow 19 standards of performance would seem to be the verdict on the new roller-bearing equipped Rivers 3.49 (.21 cu. in.). We tested prototype: fast, powerful (.38 hp at 16,000) and smooth (quite unlike most big diesels).

Proportional Engine Control

(*Continued from page* 13)

like to use flaps when you are timed for your slow run, this can be done by connecting a pushrod from the bellcrank (that regulates the engine speed) directly to the flaps. The carrier hook can also be triggered by either of the bellcranks, preferably on the engine control as it approaches the slow run. The yaw of the plane remains constant during the entire flight as each line (when viewed from the top) comes out at the same place (line guide at wing tip).

For the control line scale fliers this "multi-Mono-Line" system should be a must. Nothing is more sickening than to see a beautiful scale ship splatter the runway because of no elevator or engine control when it needed it. This "dual control" system also makes it possible to duplicate realistic take-offs, taxiing, and scale landings. For now the flier is in exactly the same position as that of a real pilot. Complete control of engine speeds and control surfaces. What more to ask for?

This type of flying is also attractive to Sunday fliers. It does not require a special design and can be used on any good flying ship. The original models used were modified ABC Trainers with the wing placed on the bottom of the fuselage. Tricycle landing gears were installed for better taxiing.

This system has been used with equal success on both ½A and the larger engines. The length of the lines and their thickness is very important as they determine how far the control units will move. Two .014 x 40′ lines were used to achieve the desired results on the ½A plane. And two .020 x 60′ lines on the .19 powered Trainer. If a .35 to .60 engine is used, a .024

line should be used on the elevator control unit because of the AMA regulation concerning line diameters (safety reasons).

Before attempting this type of flying, the modeler should be able to fly Mono-Line at ease, thus leaving him free to concentrate on the engine speed co-ordination. It would be practically imposible to learn both at once.

The Stunt-Master control units were used because of their sensitivity and bellcrank movement. No modificatitons for either the ½A or the ABC stunt units are required. They should be mounted directly above one another on a hardwood mount. The sliding exhaust restrictor was used for the sake of simplicity. It was found that a narrow slit in this restrictor worked the best for the slow speed run. (See sketch)

The reason why the extra bellcrank was mounted on the gas tank (see picture) was that the pushrod going from the bellcrank to the slide restrictor should be in a straight line. If the control units had been mounted on the other side of the fuselage (for clockwise flying) this extra bellcrank would not have been necessary. When these control units are mounted inside a built-up fuselage, they can be moved to line up (top view) with the exhaust stack of the engine.

To start the engine the slide restrictor must be held in "open" position. Either have your helper hold the control unit in that position, or have the flier hold it open by pulling the actuator all the way back on the motor control side of the handle. The engine should be leaned out when the slider is in this position. The total distance allowed for the slider to move back and forth should not exceed ¾" because that is the maximum travel of the bellcrank on the ABC Stunt-Master control unit. On the ½A Stunt-Master unit the total bellcrank travel is ⅜".

Construction of the handle is as follows: Lay out the handle base on a sheet of 1/32" brass. Drill the two ¼" holes in the tabs and cut out the opening for the spring lock. Now cut the base to outline shape and bend the tabs. Use a ¼" strip of spring steel to form the spring lock (as per end view of sketch) and solder it into place at bottom of base. This lock will keep the handle base from accidentally slipping off of the flier's belt when the plane is flying high. However, suggest permanently attaching the handle base to a heavy belt if a .35 to .60 engine is to be used.

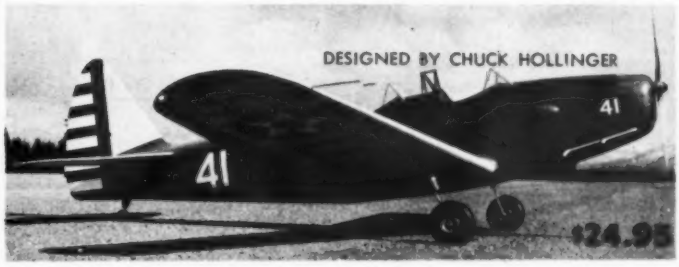
Dismount the twisted wire actuator units from their blue plastic handle grips and remove the short ¼" steel mounting pins that were used to hold the units in the handles. Silver solder the two actuator units to the ¼" I.D. steel tube. A ¼" O.D. steel rod holds the actuators in place (through the tabs) and a washer is soldered to each end. This allows the actuator units to pivot up and down freely.

The exhaust slider is made out of 1/16" sheet brass. A groove is filed into the top and bottom of the exhaust stack for the slider to ride in (see sketch). Be sure that the slider moves back and forth freely without any binds. The pushrod between the slider and the control unit bellcrank should have a tubing splice so that the proper adjustment can be made for the "neutral" position. If care is used when fitting the slider restrictor to the exhaust stack, the engine can be stopped completely—if this is desired. Should the slider fit too loosely this cannot be accomplished.

The flying line that controls the engine Mono-Line unit must also pass through an eyelet at the wing tip. This alignment

FAIRCHILD PT-19

Jetco's R/C Scale Nationals Winner



FOR MULTI, SINGLE CHANNEL R/C & FREE FLIGHT • SUITABLE FOR CONTROL LINE CONVERSION • FOR .15—.45 ENGINES • SPAN 72" LENGTH 55" • WING AREA 820 SQUARE INCHES • WEIGHT 6 lbs.

This month we're featuring Jetco's kit of Chuck Hollinger's giant 1/6 Scale FAIRCHILD PT-19, '58 Nats R/C Scale Winner. We introduced this kit just over a year ago and since then have had some wonderful letters from satisfied customers! Typical comments are—"First really good kit I've built in 15 years—only genuine model builders could put out a ship like this"; "On the very first flight, I did the book with it, before 2000 spectators"; "It will do anything in aerobatics that any other non-scale kit design will do." This kit fairly bristles with new construction ideas; there are 4 out-of-this-world plans; the 6 decal sheets are the most detailed ever produced—and the materials are the finest that money can buy. Maybe this multi-channel R/C is more model than you want to tackle right now. Even so, visit your dealer and at least take a look at it, as it represents a landmark in kit development and indicates the type of thing you can expect from Jetco nowadays. Next month — the new CESSNA 170 kit (companion model to single-channel R/C Piper Super Cruiser).

Bill Dean

Some of the other fabulous kits in Jetco's '59 Line

MOONEY MITE • $8.95
SPAN 38" .049 — .19 ENGINES
SATELLITE SAUCER $2.95
.074 — .15 ENGINES
15" DIA. — STUNT & COMBAT C/L
"THREE-IN-ONE" R/C, F/F & C/L KITS
SPAN 45" .049 — .19 ENGINES
N351A
REARWIN SPEEDSTER • $5.95
ALL DECALS INCLUDED
SECOND IN NATS IN STUNT C/L
UP TO .35 ENGINES
50" SPAN
PIPER SUPER CRUISER • $6.95
DETACHABLE FLYING SURFACES
FOR .020 — .074 ENGINES
DESIGNED BY BILL DEAN,
SPAN 40"
SABRE STUNT $8.95
FULL-SPAN FLAPS
MUSTANG P-51 H • $9.95
DECALS FOR WING (TOP & BOTTOM) & FIN
PLASTIC COWL
DECALS
AQUA SKIMMER $2.95
15-1/2" LONG AIR BOAT .035 — .074 ENGINES
DECALS
McCROSKEY'S '54, '55 & '56 NATS C/L SCALE WINNER
30-3/4" SPAN .19 — .35 ENGINES
13" SPAN RUBBER POWERED R.O.G.
SHAPED BLOCKS
*THERMIC 50 • $2.50
SPAN 47"
FUSELAGE, ROCKET & BOMB PARTS SHAPED
JETCO R.O.G. • 39¢
TIP-UP D/T STAB
ONE OF JETCO'S FAMOUS HAND LAUNCH GLIDERS
LARGEST OF THE "THERMICS"
THERMIC 72 $4.95
SPAN 72"
BUBBLE CANOPY
POD & BOOM
*"THERMIC 50 X" (POD & BOOM FUSELAGE VERSION) — ALSO $2.50
THERMIC 20 • 39¢

AMERICA'S LEADING LINE OF BALSA WOOD FLYING MODEL AIRPLANE KITS

C. A. ZAIC CO. INC. • 883 LEXINGTON AVENUE BROOKLYN 21 • N. Y. — MAKERS OF FAMOUS:

Jetco MODELS

If your local dealer is out of stock, we will suppy direct (add 25¢ postage)

CLEVELAND

SUPER-WHATZIT

(Whatizit was described in M.A.N. June '58.)

It's better than a pistol!

PREFAB KIT $3.50

Fast and so stable you can watch what the other fellow's doigg. Manoeuvers at high speed and turns tight without speed loss. Flies well even in 30-mile wind. GET IT TODAY. Surprise the crowd with this prefab winner, designed by Riley Wooten.

YOU'LL LOVE ALL THESE ITs - TRY THEM!

Each $1.95

30" P-40 WARHAWK

24" MINNOW

24" F-51 MUSTANG

30" STINSON VOYAGER

30" BEECHCRAFT BONANZA

30" LUSCOMBE SEDAN

RC GLIDER 10' ALBATROSS

Only R. C. Glider today—Flies Free flight beautifully. Kit E22* $7.50

6' CLEVELAND CONDOR SOARER — Soars for hours— Lands at fun. Kit E19* $1.95

*SEE YOUR DEALER FIRST! If he doesn't stock it send direct. Include 25c per model for pack-post. Send 2c for catalog of Cleveland Models

CLEVELAND MODEL PRODUCTS CO.

4506 LORAIN AVE. "Since 1919" CLEVELAND 2, OHIO

must be the same as for the elevator control unit. That is, the stem of the control unit must line up with the back part of the eyelet (when viewed from wing tip). Do not use the same eyelet for both lines.

Check flying lines before each flight to be sure that there are no kinks where they pass through the wing tip eyelet. If you attempt to fly with kinks at this point both elevator and engine controls will be erratic. Give it a fair chance and you'll be well rewarded for your efforts.

A Proved "Superhet"

(*Continued from page 25*)

purchased assembled is not for the novice to build. It is not a cheap receiver to construct; none in this class are. I estimate a parts cost of $30 to $40, all depending on one's ability to scrounge parts.

This receiver is brand new and its flight experience is not great. It has, however, been thoroughly tested and checked for range sensitivity, selectivity, ease of tuning, and compatability with various control systems.

Having given these few warnings with a hope that they haven't discouraged too many modelers, a discussion of this particular circuit design will help the builder.

Most superhets utilize shielded I.F. cans with two tuneable coils as transformers. Experiments, unfortunately, confirmed all the theory books; that is, a double tuned transformer gives very good side signal rejection but is poor in really getting a sharply tuned signal frequency. I got 30 Kc. to 70 Kc. bandwidths with modified commercial transformers. Since our new frequencies are separated by 50 KC. the commercial transformer idea was discarded.

Digging through the "radio Amateur's Handbook" on this subject I came across the idea of the regenerative amplifier; high gain and exceptionally large increase in tuned circuit "Q" or sharpness. By proper placement this receiver utilizes unshielded coils.

Coil L_7 controls the amount of regeneration and is the sensitivity key to the I.F. amplifier. Once set it will stay there and should need only an occasional trimming. L_7 is a form, with no windings, connected between the plate and grid of V_3. If turned in too far, the amplifier will oscillate causing squeals or chirping noticeable in the earphone used for tuning, or if it is turned too far out the set will not be able to do its designed job. The proper setting is just before the set wants to oscillate. A little trial and error will be needed at first but it can be mastered readily. Just two points of note: after each setting of L_7, retune L_4 and L_6; the proper operation should be finally determined while the set is in its case, which also acts as a shield.

With the I.F. amplifier designed, a proper detector (V_4) is needed. Diode detection is by far the most commonly used method and simplest. This was tried and rejected because of low output and a very old-fashioned circuit called the "grid leak" detector was tried. It has very high amplification for one tube and in this case does a stupendous job.

In selecting a tube for the mixer-oscillator one arrives at the compromise stage; the 1V6 was selected for V_2 because of its separate two-tube construction. A mixer stage is quite straightforward. Oscillator circuits brought on other compromises with the oscillator in the range of 22.0 Mc. to 22.5 Mc. Wanting to be "crystal controlled" for stability in the reception and having simple oscillator (one with a fun-

ALL EYES ARE ON ENTERPRISE'S

WORLD WAR ONE FIGHTERS

TRUE SCALE ½ A CONTROL-LINE FOR ALL .035 TO .065 ENGINES

AT ONLY $1.95 EACH

Wingspan 16"

Wingspan 16"

SE-5A

LEADING BRITISH FIGHTER AND MAKER OF "ACES"

SOPWITH CAMEL

MOST FAMOUS OF ENGLAND'S "BALLOON BUSTERS"

ALL KITS FEATURE
- "Satin-smooth" shaped wing & fuselage blocks
- Precision pre-cut parts
- Large colorful decals
- Fully illustrated plan
- Complete hardware and wheels

FOLLOW THE ENTERPRISE LINE
- Ready-to-Assemble Series ..... $2.50 each
- Combat-Stunt Sensations ..... $1.95 to 2.95 each
- M.M. and A.A. Series ..... $1.29 to 1.50 each
- Free-Flight and Sport ..... $1.49 to 3.95 each

FIRST IN QUALITY • FIRST IN VALUE • FIRST IN DESIGN

NEW! 1959 CATALOG—SEND 10c FOR POSTAGE AND HANDLING

ENTERPRISE MODELS, INC. MINEOLA, NEW YORK

ARISTO-CRAFT
SPACEMASTER
The MARK I
Radio Control RECEIVER
READY TO USE | $19.95
POLKS Model-Craft HOBBIES
Manufactured from all new Hi-Fi quality components, this new receiver is a carrier responsive unit that has been thoroughly field tested for over a year. It incorporates "single-touch" tuning, 2 "twin-matched" transistors, plus a low drain hard tube. The "locked-in" deep etched printed circuit guarantees consistent quality and trouble-free performance. The Spacemaster MK1 can be tuned over all new alloted frequencies.
• Battery Requirements: 30 V.B., 1½ V.A.
• Relay Operation; .6 MA on idle, rises to over 4 MA on signal for positive relay operation.
• Factory built, tested, ready for operation.
• Metal case enclosure—Wgt: 13/4 ozs. with relay.
• FULLY GUARANTEED
Power-Packed ALL NEW WET CELLS
High ampere hr. capacity, small physical size, long life. NOT surplus batteries! Manufactured from hi quality materials, include heavy duty plates, clear plastic case, marked terminals. Add 50¢ shipping charges to battery prices.
TYPE 64 – 6V., 4 Amp. Hr. Cap. 2¼" x 3½" x 1¾") $4.75
TYPE 23 – 2V., 3 Amp. Hr. Cap. (3⅛" x 2¼" x 1¾") $1.75
TYPE 41 – 4V., 1.5 Amp. Hr. Cap. (1⅜" x 1⅜" x 1½") $1.65
TYPE 26 – 2V., 6 Amp. Hr. Cap. (4½" x 2¼" x 1⅜") $3.00
TYPE 26G – 2V., 6 Amp. Hr. Cap. (4½" x 2¼" x 1") $3.75
1" Sq. MILLIAMETER
Small enough to build into your Model. Specify range desired when ordering. Wgt. approx. 3/4 oz. 0 to 1, 0 to 5, 0 to 50 $4.95
ARISTROL MOPA TRANSMITTER
Features printed circuit chassis, extended range transmission, 27¼ freq. & "tuning-eye" for fast, accurate checking, quality controlled hi-tolerance components & specially designed crystal.
E-Z ASSEMBLY KIT $14.95
READY-TO-USE (less batt.) $19.95
ARISTO R/C MULTI-TESTER
Sturdily built, accurate testing unit covering every R/C need ±2%. Full 2¾", moving coil type meter. Readings to 1000 MA, 200 V. DC, 100 to 10K ohms. Zero adjusting screw ohms adjust, black and red test leads with prods supplied. Black plastic case. Instruction book included. $16.50
DOUBLE PER-MAG MOTORS
D.C. battery operated motors — hi-power, lo-drain. Ready-mounted with replaceable carbon brushed. Operate on 1/2 to 8 volts.
No. .01 $3.69
No. 0 1.00
No. 1 1.25
No. 1.5 1.35
No. 2 1.50
No. 3 2.00
No. 4 2.50
No. 5 4.95
No. 4.5 2.95
314 FIFTH AVE., DEPT. MA1092, NEW YORK 1, N.Y.

damental crystal) appeared to be like having one's cake and eating it too. The Valpey Crystal Company (1214 Highland Street, Holliston, Mass.) helped me out by grinding the crystal I desired and also put it into a very small case (their VM-6 case). It has proven to be a real gem and they are obtainable for just $7.50. Only one crystal is needed for all frequencies as the set is readily tuneable to receive all the 27 Mc. R/C channels.

The final circuit to be discussed is the AVC. Most AVC's are obtained from rectified I.F. power, but the grid leak detector prevents this so I had to use some of the detected audio voltage. Without AVC the audio output varies from 0.2 volt to 30 volts, a rough proposition for the following control circuits to digest. With AVC the output varies from 0.2 volt to 0.8 volt, an acceptable variation.

Many ideas were considered for packaging a radio of this nature. Of prime importance are functions of shielding and circuit cross coupling. The shielding was taken care of by using a case (available from Ace R/C) which is of thin but sturdy aluminum measuring 2⅝ x 1⅞ x 4 inches. A piece of 1/16 inch thick epoxy-fiberglass phenolic board makes an excellent construction base. Figure (3) shows this board with the major components attached as a guide to the builder. Not shown are small components, the case cover (normally riveted to the board), or any terminals that may be needed. Aluminum was used to make slide tracks attached to the inside of the case. They are spaced the thickness of the board and allow the whole unit to slide easily into the case.

The physical arrangement of components in any radio can be quite critical. Most radios are laid out in logical order, like schematics are often drawn on paper. In this case it is important to have the tube-coil placement as shown in the illustrations; a necessary consolation to using unshielded coils. To facilitate this placement a piece of aluminum four inches long and bent as an angle was riveted to the board to support the coil forms.

Tuning of a radio of this type is, at first, a little more involved than the one adjustment superregen receiver. Once tuned it has the stability to remain that way for a long time. Firstly determine that the oscillator is operating. This can be done several ways, the simplest of which is to monitor the B plus current to the oscillator coil. A drop in current will be noted while tuning L_5 indicating an oscillating condition. If no drop is noticeable, the stage may already be in operation. This can be checked by removing the crystal from its socket and comparing the higher current to that obtained with the circuit completed.

For the remainder of the tuning process a high impedance AC voltmeter (100 kohm or better) should be connected between the audio output and ground. The meter should also have an earphone output connection since the ear is more sensitive than even the low range (0-1 volt) of a meter. A description of a field portable meter for this purpose will be described in the following article. Also handy is a modulated transmitter, crystal controlled of course, of the proper frequency. With the voltmeter connected, the radio power on and the transmitter on with full antenna at close range, you will barely hear the tone. Adjust L_2, L_3, L_4, and L_5 to increase the loudness. As the audio voltage rises above 0.5 volt, the transmitter antenna should be lowered and moved away. Be

ESSCO RC PRODUCTS
QUALITY . . . VALUE
UNSURPASSED – –
HERE IT IS! THE RAY KETCHLEDGE PULSER
Exclusively mfrd. by ESSCO
A new concept in reliable performance of proportional control of rudder/elevator. For use with ALL present single channel equipment. Interaction between controls eliminated through unique/original circuit design by one of industry's top engineers.
Use for proportional rudder with fail safe and engine control, SIMPLE/SIMUL (G/G) or what have you. Dual simul proportional with trimable engine control available at later date using EXISTING SINGLE CHANNEL EQUIPMENT and novel receiver adaptor (Ketchledge design). No tubes, low drain pulser operation from 4 C cells. The Essco-Ketchledge Pulser comes complete (no kits) in handsome bakelite case ready to use, only $34.95
The ULTIMATE in reliable proportional control actuators. The ESSCO OB, using the highly efficient MINITONE MOTOR. Originally developed and endorsed by BOB QUICK of Miami. Precision machined parts for long reliable life.
Complete actuator ready for installation in model.. 10.95
STD ESSCO MINITONE ACTUATOR, high torque, low drain, under 100 ma on 3 volts, complete unit $9.95—
Kit 6.95
YOU ASKED FOR THIS: The ESSCO '59 model all purpose battery charger. A heavy duty underwriters compliance unit that will properly recharge at mfr's ratings all cells and batteries used in RC work. Note that we state "mfr's" specified charging rates. Other chargers specs simply state "will recharge all types" but are not designed to recharge the popular BB54A surplus, etc. cells at the 2 amp rate but instead at some low value which would require 24-48 hours to fully recharge them. The Esco charger is provided with a 6 terminal connector board and 3 controls that allow fine regulation of regular and trie³le charge of the popular new NICADs, etc. 11.95
NEW MINI CHARGER, a special model for only recharging the VOLTABLOCS & SILVERCELS. Compact unit with full wave constant current circuit for PROPER regular or trickle recharge service, a ESSCO Super Special 5.95
SPECIAL REGULATED OUTPUT VOLTAGE MODEL for the BRAMCO 3 and other multi-chan. XMTRs. "Clean" output voltage delivers superior performance over dry batteries 17.95
ALL THAT'S NEW & BEST in RC, available first at ESSCO, NEW MONO MODULATOR, a compact stable modulator suitable for converting ALL CW XMTRS to TONE. Especially suitable for the MAC IIs. Requires only a few minutes to install. Tone variable 500 to 1300 cps 11.95
ESSCO—NEW YORK
28 Walker Street
New York 13, N.Y.
Telephone WA 5-8182
BUY ESSCO RC
at your local dealer, and
BROWN'S HOBBY CENTER
5-51 Broadway, Bronx, N.Y.C.

How Should You
Choose An Engine?

In one word — CAREFULLY. Be sure it has time tested features as follows:

Short stroke "over-square" design for less friction.

Spherical combustion chamber, burns fuel faster and cleaner.

Cylinder head gasket "locked-in", cannot blow out.

Compression ratio 9 to 1 for greater efficiency.

Connecting rod of forged aluminum alloy, tough as steel, but light in weight.

Carburetor designed for high fuel lift to give certain fuel draw in all stunt or combat maneuvers.

Needle valve with "micro-fine" thread, which may be reversed if desired.

Piston of precision cast meehanite lapped to a perfect fit.

Baffle plate scientifically formed to direct the gas flow.

Crankshaft of alloy steel, counter-balanced, hardened, ground and polished, with a large, square port.

Cylinder of heat-treated steel, micro-honed to a perfect finish with large square ports for high volumetric efficiency and deep fins for good cooling.

Piston pin of hollow, hardened steel, precision ground. Retaining spring clips keep the pin in place, making pads unnecessary.

Main bearing of aircraft quality, low friction, long-wearing bronze.

All of the above features, and others too numerous to mention, are found in the new, easy starting, powerful and speedy

FORSTER
ENGINES

There are eight FORSTER models to choose from:

29R	Air cooled	$14.95
29RC	Speed Control . . .	$19.95
29RW	Water Jacket . . .	$19.95
29RCW	Speed Control & Water Jacket . . .	$24.95
35R	Air cooled	$14.95
35RC	Speed Control . . .	$19.95
35RW	Water Jacket . . .	$19.95
35RCW	Speed Control & Water Jacket . . .	$24.95

Beside all the above, you get up to $5.00 trade-in allowance for your old engine at your Authorized FORSTER Dealer. Send coupon for free illustrated literature, and name & address of your nearest FORSTER Dealer.

Forster-Appelt Mfg. Co., Inc.
107 E. LANARK AVE., LANARK, ILL.

Name_____

Address_____

City_____

State_____

alert for the signs of I.F. regeneration as described before. Once the I.F. is oscillating it will show an audio voltage reading when the transmitter is turned off. Adjust L_7 for proper operation and retune. When a good tuning is obtained the oscillator coil L_5 should be trimmed for a maximum reading of output. A completely shielded transmitter with no antenna should give about 0.2 volt audio at about seven-foot distance in the basement shop.

Like any amateur receiver with a long-wire antenna system, this radio likes lots of antenna. In a large multi airplane the antenna should run out to the fin, back to a wingtip and across the entire wing span. Everytime a different antenna is connected coil L_2 should re betuned. Under these conditions I measure about 0.5 volt audio at 1/3rd mile range with the ship three or four feet off of the ground. This is the ultimate test, a really good range check. Every R/C modeler should make tests with a new receiver or installation to gain confidence with the operation of the equipment. It is only with this confidence should a model be released from the shackles of the ground and committed to the unknown qualities of pilot error in flight.

One final note is on installation. In spite of the lack of relays within this device it is good to pad the receiver mounting with a quarter inch of sponge material. The receiver is rugged but it still needs the shock protection for landing nose first into the ground.

(To be concluded next month.)

"Nifty"

(*Continued from page 22*)

the wing and landing gear struts to size and also sand in the taper. To make the taper where the landing gear strut meets the fuselage, lay the sandpaper on the table and lightly rub the strut across it until the angle is made. The front thrust bearing may be purchased at some hobby stores, or America's Hobby Center. It also can be made of a strip of tin can metal or a small flattened nail with the hole drilled or punched with a phonograph needle. The rear hook and propeller shaft can be made from straight pins or paper clips. Be sure to use some thread when cementing the front bearing and rear hook into place.

The wheels are made of 1/16" sheet balsa using a penny to cut them round; they are cemented right on the landing gear struts. Of course, if you have tools you can make wire fittings so that you will have revolving wheels.

•The wing and tail now can be covered with light tissue paper using nail polish for adhesive. The excess paper is trimmed off with a razor and then lightly with sandpaper. *Do not coat the tissue surface.* No dope is needed.

The ailerons can be cemented to the wing with fine copper wire hinges. Be sure that the aileron is about 1/16th inch away from wing. (See drawing.) This is necessary otherwise you will not be able to bend the aileron up or down. The rudder is cemented at an angle to the bottom of the fin with a space on top. The elevator is also cemented away from the stabilizer.

Mark off the wing strut position on the fuselage and rub some cement around the fuselage at both places. Also rub some cement over both ends of the wing struts and also the bottom centers of the wing. Allow the cement to harden. Now apply cement to the bottom of the front wing strut and press it into place and hold it until it sticks. Do the same with the sec-

ANNOUNCING THE NEW
OS® CUSTOM "X" MAX 35

OS Custom X 35 $14.95

This is our first announcement of our new CUSTOM "X" line of OS Engines. We will continue to distribute the standard line OS Combatnik's. The CUSTOM "X" Max's feature the following:
1. More cooling area.
2. New castings for more porting.
3. Aluminum head gasket for better cooling.
4. Factory run testing.
5. Pressure fitting included.
6. Substantially more power.
7. Piston porting; bronze conrod bushings.

OS Custom X Series

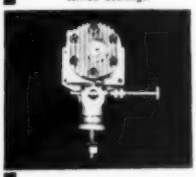
Custom X 35	14.95
Custom X 35 R/C	18.95
Custom X 29	14.95

Std. OS Combatniks

Max 35 Combatnik	12.95
Max 29	12.95
Max 15 II	9.95
Pet .09	4.95
Max 35 R/C	16.95
Max 29 R/C	16.95
Max 15 R/C	13.95
Pet 09 R/C	$ 5.95
O. S. Max 35/29 Pressure Fitting	$ .50

CONTROLAIRE R/C

SM-3V No. 3 Volt Transistorized Tone Receiver with Relay*	29.95
HH-T-CW Transmitter — Both Tone and CW, Assembled and	
5' Antenna	34.95
Club-Pak*	25.95
2nd plane harness, C-Pak	1.95
SM-2 Receiver 45v.	19.95
Assmbled with Relay (**)	24.95
Installation-Pak*	24.95
4½ V. 8 Channel RX	109.95
Transmitter HH3A4	$19.95



SUPERTIGRE

.15 LAP BB "V" Series	13.95
.19 LAP BB "V" Series	13.95
.29 LAP BB "V" Series	16.95
.35 LAP BB Combat	16.95
.35 LAP Rat Race	17.95
Supertiger G24/50	$23.50
.60 RING BB G-24A	23.50
G-32 .06 BB lap. Diesel	9.95
G-31 .09 BB lap. Diesel	12.95

DEALER'S INQUIRIES INVITED

CANADA
Academy Hobby Supplies Ltd.
2624 Eglinton Ave. W. Toronto 15, Ont., Canada
U.S.A.
WORLD ENGINES
8206 Blue Ash Road Cincinnati 36, Ohio

X-ACTO KNIFE HELPS MAKE PLASTIC MODELS VALUABLE SHOW PIECES!

HAWK
THE AMERICAN GRASSHOPPER
This, and all other exciting HAWK models, recommend an X-ACTO KNIFE in their assembly instructions.

X-ACTO interchangeable-blade KNIFE makes assembling easier, faster, more accurate. The finished model is perfect in every detail... adding to its value as a collector's item.

X-ACTO knives from 29¢.

Write for new X-ACTO Hobby Tool Guide — 25¢.

X-ACTO, INC.
48-53 Van Dam Street
Long Island City 1, N. Y.

ond wing strut, then cement on the stabilizer and the rudder. The stabilizer should have the paper side on the bottom. Before the cement is hard, correct any part that may get out of line by bending it back. After the cement is hard put a drop of cement on the tops of the wing struts and press the wing on top of them and hold until the cement hardens a bit. Books may be put under each wing tip to hold them in position. The landing gear struts are now cemented on. Now you will have to be very patient and wait until the cement is really set before flying the model.

Put on the rubber motor and wind the propeller about 100 turns. Gently hand launch the model forward. If the model dives, bend up the elevator slightly until a smooth flight results. Should the model nose up sharply and then dive, bend the elevator downward until a smooth flight results. Use the rudder tab to make right or left circles. For very tight turns, also bend the aileron that is inside of the circle slightly downward and the aileron that is outside of the circle slightly upward. This method will enable you to make flying circles as small as six feet. For better climbing ability the thrust bearing that holds the propeller should be bent a little backward, so that the propeller will point slightly downward. This imparts "downthrust." You can experiment as much as you want to—the more you do the more you will learn.

Engine Review • Fox .09

(*Continued from page* 30)

fitted to lightweight motorcycles, lawnmowers, etc. There is nothing "inferior" about the 3-port layout. It is not suitable for ultra-high-power, high-speed engines because it does not allow the intake timing to be sufficiently advanced, but, for a "sport" type motor, and, especially for beginner use, there is a great deal to recommend it. There are, in fact, a few foreign beginners' motors which are of the 3-port type: the Mills Diesel is one and is widely recognized in Europe as having easy-starting characteristics second to none among diesels.

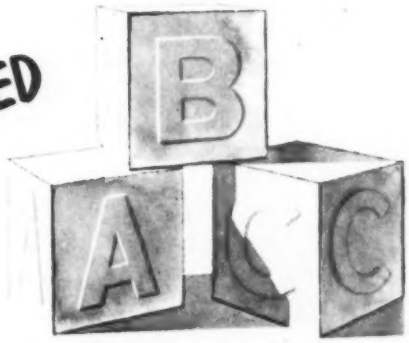
Altnough it reverts to a basically simpler induction system, however, the Fox .09 is, in all respects, an entirely modern design. Fox has cleverly adapted the 3-port layout to current trends, permitting the use of a reverse-flow scavenged cylinder, with internal bypass flutes and generous exhaust ports. Furthermore, instead of a single intake port leading direct from the carburetor, the .09 has twin opposed intake ports (positioned directly below the exhaust ports) fed from an annular chamber formed between the cylinder liner and the upper section of the crankcase casting.

First requirements of a beginner's engine are, unquestionably, easy starting and docile handling characteristics. Our test sample excelled in both respects. We followed the maker's instructions to the letter and it fired on the very first flip of the prop. A further half turn of the needle was all that was required to get the .09 running continuously and evenly. Tried on a wide variety of 6- and 7-inch diameter props, there was no deterioration in starting qualities and no tendency for the prop to snap round and chop the operator's fingers.

When re-starting the motor warm, we found that a single preliminary flick, with the intake choked, would produce an instant re-start—usually on the very next flip of the prop.

To obtain the absolute best setting of the needle-valve for maximum power,

RADIO-CONTROLLED FLIGHT



SIMPLE AS . . . with a

Babcock READY-TO-OPERATE, RELIABLE SYSTEM

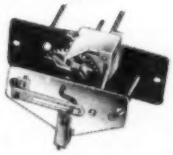
Babcock has taken the mystery and confusion out of R/C flying. The Babcock 3-unit Radio Control System is precision engineered for simplicity of operation and reliable performance . . . gives you everything you need for perfect radio-controlled flight.

A LL-TRANSISTORIZED
"MAGIC CARPET" MARK III RECEIVER

Amazing new extra-small, extra-light receiver with 4-stage transistorized operation. Trans-Flex circuit for precision control, longer range, reliable performance. Weighs only 1¾ oz. Uses single pencell size 9v. battery. Measures only 1½" x 2⅜" x ⅞". Complete (less battery) . . . $27.95

B ATTERY-OPERATED
"MAGIC WAND" TRANSMITTER

Hand-held size less than 3" square. Powerful . . . reliable. Strong 27 mc single channel signal. Uses standard size batteries. Factory assembled. BCT-10 . . . $24.95 (less batteries).



C ONTROLS ESCAPEMENT
"MARK II" SUPER-COMPOUND SERVO

For full rudder and elevator control. Complete with motor control switch and all necessary linkage. Nothing else to buy. Rust and corrosion proof. Thousands in use. Weighs only ¾ oz. . . . $7.95

. . . and BABCOCK ALL-PLASTIC PLANES

For peak R/C performance, fly the two Babcock authentic plane models . . . the Aeronca Champion and Piper Tri-Pacer. Precision molded of durable, high-impact plastic, they can be easily assembled in a few hours ready to fly. Also equipped for U-control and free flight.

Only . . . $9.95

593

Babcock MODELS INC. COSTA MESA, CALIF.

At Your Authorized Babcock Dealer . . . or write for complete Catalog.

Bonner

ANNOUNCES THE *ALL NEW* DURAMITE MULTI-SERVO $12.95

VOLTAGE: 2 TO 4½
BATTERY DRAIN:
NO LOAD 200-300 MA.
WINDING 2 OHMS

WEIGHT: 2½ OZ.
OVER 4 LBS. THRUST

FEATURING OUR OWN MOTOR ESPECIALLY DESIGNED FOR SERVO USE—NOT AN IMPORT!

OILITE BEARINGS — 92% SILVER BRUSHES
TURNED COMMUTATOR — NYLON HOUSINGS

TEST MODELS OPERATED FOR OVER ONE QUARTER MILLION COMMANDS!

AVAILABLE AT YOUR DEALER NOW!

BONNER SPECIALTIES 2900 Tilden Ave Los Angeles 64, Calif.

YOU'RE ALWAYS IN GOOD HANDS

A GROUP OF FAMOUS HOBBY CRAFT APPROVED DEALERS IN EVERY GOOD CITY

When You Buy At
The Store Displaying
This Dealer Emblem

(Dealer inquiries invited)
Write To:

CRAFT, MODEL & HOBBY INDUSTRY
30 East 29th St. New York 16, N.Y.

"If you can't hold that Fox ROCKET .09, Charlie, just let go. You can get a new one for only $4.95."

The Only Engine in Its Class With Cylinder Walls Harder Than Chrome

JOHNSON ENGINES

THE CHOICE OF MODELERS THAT COUNT

To name a few

.35 15.95

STUNT 15.95

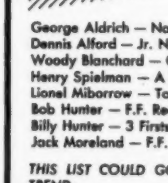
.32 15.50

.29 14.95

George Aldrich — National Stunt Champion
Dennis Alford — Jr. National Champion
Woody Blanchard — Open National Champion
Henry Spielman — A Top Stunt Modeler
Lionel Miborrow — Top So. African Modeler
Bob Hunter — F.F. Record Holder
Billy Hunter — 3 Firsts — F.F. 1958 Nationals
Jack Moreland — F.F. Record Holder

Riley Wooten — National Combat Champion
Bill Arrowsmith — National Combat Champion
Art Chambers — King Orange Combat Champ.
Ted Hedtke — King Orange Combat Champ.
Mel Flint — West Coast 1 Hr. Ratrace Champ.
Dick Williams — West Coast 1 Hr. Ratrace Champ.
Gerald Chaney — West Coast 1 Hr. Ratrace Champ.
Toshi Matsuda — A Top F.F. Modeler

THIS LIST COULD GO ON FOR MANY, MANY PAGES, BUT IT SHOULD GIVE AN INDICATION OF TODAY'S TREND.

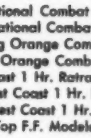


The JOHNSON CORECABLE will not stretch or spiral, it is more kink resistant and 15% stronger than other cables. Ninety (90) consecutive loops have been put in JOHNSON CORECABLES without loss of control.

49¢

GL-1—STANDARD (LONG)

The JOHNSON GLOW-PLUG is guaranteed to take 2 Volts — Took the grueling test of 70 hrs. (41¼ hrs. in test and 30½ hrs. on world's endurance flight.) Gave Harris and Shelton a class B record of 115.11 M.P.H. Triple crimped seal to withstand 3500 PSI. ¼-28 long type.



59¢

GL-1B—ALL-SPEED (LONG)

JOHNSON (ALL-SPEED) GLOW PLUGS are ideal for R/C work, where low RPM is required. Are guaranteed to take 2 Volts. Element of an entirely NEW alloy of tough long lasting fatigue resistant elements — high heat resistant. Triple crimp seal that will hold 3500 lb. PSI. ¼-28 long

SEE YOUR DEALER TO-DAY

DYNAMIC MODELS INC., FULLERTON, CALIFORNIA

while the engine was running, fairly careful adjustment was needed, but, inasmuch as the motor would start and run smoothly on openings much wider than the optimum setting, needle valve control was non-critical. Once set, the needle holds its adjustment firmly.

The location of the needle control knob is a trifle close to the exhaust, but not so as to cause scorched fingers unless prolonged "fiddling" is indulged in. Its position, well back from the prop, is a safety feature especially noteworthy in a beginner's engine.

Since 3-port motors, like reed-valve engines, will run in either direction with equal facility, there is an occasional tendency, with the Fox .09, to start in the opposite from the intended rotation. This is usually most marked on small props. If you experience this bother, there is a simple remedy that works well with the Fox: just flip the prop the other way!

Structurally, the .09 is an interesting departure from orthodox practice. A single, cleanly proportioned pressure casting forms the crankcase, main-bearing housing and fuel tank and also embodies the conveniently inclined rear intake, plus both beam and radial mounting lugs. A screw-in rear cover separates the crank chamber from the fuel-tank section. When the integral tank is used, it is sealed by means of a stamped aluminum plate, with a cork insertion gasket. Four Phillips head screws and nuts are provided to secure this plate by means of the radial mount holes. The tank does not leak and holds a useful supply of fuel—about ¼-oz.

The hardened crankshaft is of the crescent counterbalanced pattern and is ground on working diameters. Journal is ¼-in. dia. and runs direct in the crankcase material. A ⅛-in. dia. oil hole leads into the main bearing from just below the cylinder skirt. The cylinder is machined from leaded steel, with integral fins and is threaded to the crankcase. It is topped by a screw-in aluminum head with integral 1.5 volt glow filament. Soft aluminum gaskets are used to make head and cylinder joints.

The piston and machined steel conrod are a ball-jointed assembly, the socket being formed on the underside of the piston head. The piston has a hardened, ground and lapped skirt and a flat crown.

Other details include a pressed-in, brass spraybar with one-piece steel needle and control knob and coil-spring friction device. An alloy prop drive washer is keyed to the shaft by three splines. Threaded portion of the shaft is 3/16-in. dia.

A welcome feature is that a lengthy break-in (which has become one of the less desirable features of modern glow engines of the larger type), is not necessary with the Fox .09. Before our tests, however, we gave the .09 a series of runs totalling one hour's duration. Well within this time, it proved capable of holding a lean run on the recommended fuel without overheating or loss of power.

The maker's recommended prop size for the .09 is a 7/3 or 6/4. Our test findings indicated that it will easily reach its peaking speed (14,000 rpm) in flight on a 7/3 and will go substantially beyond its peak on most 6/4 props.

Actual brake horsepower figures obtained were as follows:

At	9,000	rpm — .081	bhp
	10,000	" — .092	"
	11,000	" — .100	"
	12,000	" — .106	"
	13,000	" — .109	"
	14,000	" — .111	"
	15.000	" — .109	"
	16,000	" — .105	"
	17,000	" — .099	"

The .09 ran particularly smoothly and consistently at the higher speeds of around 14,000 to 17,000 rpm, although it will be noted that, at the latter speed, the Fox is turning well above its peaking speed and, to achieve maximum power, it would be preferable to avoid props which allow static rpm to exceed about 14,000. Incidentally, it may be mentioned that this peaking speed is, so far as we know, the highest ever recorded with a 3-port engine.

Summary of Data

Type: Reverse-flow scavenged three-port two-cycle.
Weight: 3.1 oz. including integral fuel tank.
Displacement: .0974 cu. in. or 1.596 c.c.
Bore: 0.527 in. Stroke: 0.450 in.
Stroke/Bore Ratio: 0.854:1.
Specific Output (as tested): 1.14 bhp/cu.in.
Power/Weight Ratio (as tested): 0.50 bhp/lb.
Price: $4.95.
Manufacturer: Fox Manufacturing Company Inc., 5305 Towson Avenue, Fort Smith, Arkansas.

Bi-Fli

(*Continued from page* 17)

A second was then built with generally heavier construction and powered with the O.S. Max II .15 R.C. This is the one pictured and weighs 3½ pounds. Its flight characteristics leave nothing to be desired and its stunt capabilities are limited only by the ability of the pilot and the radio equipment used.

As shown on the plans, control is via cascaded Bonner Vari-comps. The receiver used is the same unit as presented in the March '59 issue of MAN. With this set-up, outside loops, inverted flight, vertical figure-eights, etc. are easily performed (with practice). Outside loops are done with the engine at about half throttle. The Vari-comps and associated torque-rod linkage will not hold elevator position at high speeds and attempts at outside loops with full power result in rather exciting inverted power dives. The ship flies very well inverted with half throttle and elevator held in down position. The limited control provided by having to hit four blips for down requires that down elevator be held continually during inverted flight. If this is tried with full power, the ship will climb out of the inverted flight but on medium power it will fly slowly inverted as long as desired. Inverted flight is entered at the top of a slow half loop. It is in such maneuvers that the excellent stall characteristics of the biplane are of real importance.

Since this design was to provide the basis for a larger all out multi-channel ship, I decided to satisfy my curiosity concerning the possibilities of full symmetrical airfoils. New wings were built with a 14% depth at 35% chord full symmetrical section. The ship flew faster and seemed less responsive because of the loss of lift. There seemed to be no advantages to the symmetrical wings as inverted characteristics remained about the same. Actually, the difference in performance between the two sets of wings was not great further confirming my belief that so long as certain basic principles are adhered to, airfoils are not critical. It is certainly a waste of time to spend hours accurately plotting sections from co-ordinates.

Thus, the background to the final design of the Bi-Fli. A 1,000 square inch version is now under construction with ailerons added to the lower wing.

Construction is reasonably simple and very strong. The wings are designed so that they may be built flat on the work

MODEL AIRPLANE NEWS

Anniversary SPECIAL

LIMITED SUMMER OFFER

OFFER GOOD UNTIL SEPTEMBER 30th, 1959

Celebrating Our Thirtieth Consecutive Year of Service to the Model Airplane Builder

Twelve Months $3.00

Two Full Years $5.00

Yes, it's only about once in 30 years that we can make an offer like this! Why not celebrate with us too by taking advantage of this Big Saving ? Think of it—twelve jam-packed issues covering your favorite hobby for only $3. Act now as offer is limited!

MODEL AIRPLANE NEWS, 551 Fifth Ave., New York 17, N. Y.

I want to take advantage of the Anniversary Offer.

Enclosed is: ☐ $3 for one year ☐ $5 for two years ☐ If extension of present subscription, please check.

Name .....

(Please print)

Address .....

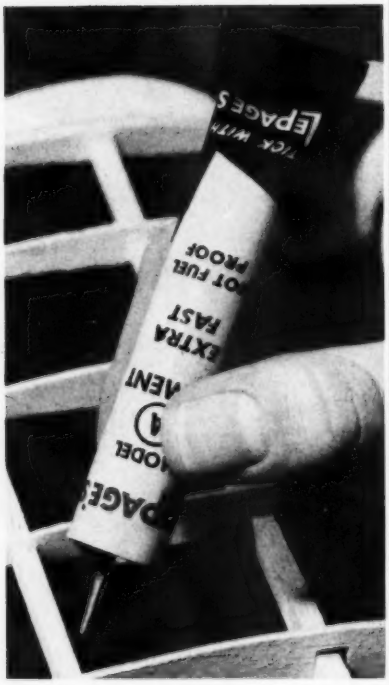
City ..... Zone ..... State .....

Canada & Pan American Union Add 50c Per Year • All Other Countries Add $1.50 Per Year

STICK WITH

LEPAGE'S

TRADEMARK



. . . **in the new** and easier-to-use **Pin-Point Tip.** Gives you as much—or as little—as you need. (And right where you need it, too!)

There's a LEPAGE'S cement or glue for every hobby need.

board. After the wings have been completely assembled including dihedral (subtract the thickness of the bottom half of the rib section from the specified dihedral), the bottom half of the ribs are cemented in place and the center section planked. Cover with silk and dope with nitrate dope.

Begin fuselage construction by splicing 1/16" sheet as necessary to provide a section large enough to cover the plan side view of the fuselage. Then trace the complete fuselage side plan to the sheet side with back-to-back carbon paper so that the right side of the fuselage will be traced on the back of the plans as the left is traced on to the balsa. Then turn over the plans and trace the right side to the other 1/16" balsa side. Repeat this process for the ¼" sheet doublers. Cut the ¼" doublers to outline shape and cement to the untrimmed 1/16" sheet sides. Contact cement will greatly speed and simplify the lamination. Cement the longerons, uprights, escapement guides, etc. to the sides to form complete units. Then trim the sides and assemble in the usual manner. The fuselage, fin and stabilizer are covered with Jap tissue and doped with nitrate dope. After color doping, apply fuel proofer to the entire airplane.

The O.S. Max II .15 RC was selected for the Bi-Fli as it is powerful, smooth running, and has the excellent fuel suction so necessary for violent maneuvers. Its throttle characteristics are excellent. A wire drag is used on the steerable tail wheel to keep the plane from rolling on low speed. If you don't like flying, you can have a ball just taxying around the field.

The tank shown will run the O.S. about 4-5 minutes. I've just changed the battery arrangement to accommodate a Hillcrest square four pencell battery box mounted right behind the firewall in a horizontal position. The box slides into balsa tracks on its mounting ears. The "B" battery is wired in right beside the pencell box. This runs the O.S. about 10-15 minutes.

If the cascaded Vari-comp set-up is used, be sure to use 4½ volts on all escapements. This was found to be an absolute necessity for reliable operation. The escapements should be checked to see that there is a slight clearance between the escapement pole and moving arm to prevent sticking due to the arm becoming magnetized by touching the pole piece. The 4½ volts also will insure positive action of the quick-blip motor control. Use ¼" flat rubber well lubricated with castor oil to drive the escapements.

The Bi-Fli has well over 200 flights with this system without any kind of trouble.

Final trim settings will depend on the type of equipment used. The angular differences and downthrust shown will be about right for rudder only flying and are a good starting point for more elaborate systems. The original is trimmed with about 1/16" positive angular difference in the top wing and 1/32" positive in the lower wing. Draw a pencil reference line lightly on the fuselage parallel to the stabilizer to check w/n settings as they should be accurate.

Test flying is a snap as the Bi-Fli is very stable and quite forgiving. However, it responds very quickly to control so go easy. Don't be satisfied with good flight performance. Keep careful trimming until everything is as nearly perfect as possible. After flying, I think you will agree that the Bi-Fli has a lot to offer in flight performance that monoplanes cannot equal. It may be that, in the future, correctly designed biplanes will prove unbeatable for RC stunt.

Complete Listing of Air Age Technical Manuals Including Plans, Data, Photos

TECHNICAL MANUALS 50¢ EACH

B-25 MITCHELL
Best medium bomber WW2, the ship used by Doolittle on Tokyo raid from carrier.

B-24 LIBERATOR
Companion in arms to the B-17, the Liberator "heavy bomber" noted for range.

B-17 FLYING FORTRESS
The most famous of all the World War 2 warplanes, B-17 "heavy" was tough ship.

CURTISS P-40
From beginning to end, P-40's prominent in all theatres excepting the European.

F-86 SABRE
What the Mustang was to WW 2, the Sabre was to Korean war. Classy jet fighter.

F-94 STARFIRE
All-weather jet with tremendous rocket firepower, seeks out intruder by radar.

B-47 STRATOJET
More of these six-jet bombers in Strategic Air Command than any other machine.

P-51 MUSTANG
Fastest of all fighters of the period, this magnificent plane fought the world over.

P-38 LIGHTNING
Famed twin-tailed, long-range, two-engine fighter was most unique.

P-47 THUNDERBOLT
Powerful slugger, the P-47 earned name "the Jug." Rugged, powerful.

F4U CORSAIR
What the P-47 was to the Army Air Force, the Corsair was to the Navy and Marines.

AIR AGE INC.
551 Fifth Ave., New York 17, N. Y.

Herewith $..... for the following booklets in your TECH MANUALS at 50¢ each.

.....copies B25
.....copies B24
.....copies B17
.....copies P40
.....copies F86
.....copies F94
.....copies B47
.....copies P-51
.....copies P-38
.....copies P-47
.....copies F-4U

☐ Enclosed $5.50 for all eleven copies.

Name .....

Address .....

City ..... State .....

"AIR ACES OF THE 1914-1918 WAR"

Contents:

212 large pages 8½" x 11¼" containing over 100,000 words, and 336 photographs, many of which have never before been published. In these 336 photographs may be identified over 600 airmen and 200 aircraft (or parts thereof), many of which have been chosen on account of showing insignia and serial markings.

There are 135 INDIVIDUAL BIOGRAPHIES of the leading Aces of Great Britain, France, United States of America, Italy, Belgium, Russia, Germany and Austro-Hungary; also sections of the military backgrounds of each of these countries. Altogether, the names (with Rank) of over 1,525 airmen are identifiable in the Index.

There are lists with scores of: 533 British Aces and 25 airmen awarded the Victoria Cross; 158 French Aces; 88 American Aces and 4 airmen awarded the Congressional Medal of Honour; 42 Italian Aces; 17 Belgium Aces; 18 Russian Aces; 365 German Aces and 100 airmen awarded the *Pour le Mérite*.

Never before has there been published such complete and correct lists of all the Aces of the 1914-1918 War: a total of no less than 1,233 names! This amazing book is printed on glossy white Art paper, bound in linen-cloth boards gilt blocked. Weight is nearly 2¼ lbs.

$8.50 THE PUBLISHERS FIXED PRICE **$8.50**

This price includes airmail acknowledgment of your order, especially strong cardboard carton for safe transit, postage and insurance of your copy. Pay by personal check if more convenient than buying an International Money Order. Post direct to Publishers, address below. Your copy despatched same day your order received. Average transit time to United States and Canada only 12 to 16 days.

HARLEYFORD PUBLICATIONS, LTD. LETCHWORTH, HERTS, ENGLAND.

For the first time in sets—YOU asked for them! Now available!

Set = W-1
- SOPWITH CAMEL — Famed WW-1 English pursuit
- WRIGHT MODEL A — A true pioneer—a gem!
- WRIGHT MODEL B — Another collector's item
- SE-5A — WW-1 pursuit—a favorite

Set = W-2
- SPAD S-XIII C.1 — Renowned WW-1 French pursuit
- CURTISS MODEL A — A competitor of the Wrights
- SPAD S-VII — Great French WW-1 pursuit
- WRIGHT FLIER — Man's first flyable plane

Set = W-3
- CURTISS P-1 HAWKS — Glamorous Army fighters
- F11C-2 GOSHAWK — Navy carrier fighter
- P-6E HAWK — Greatest of all the Hawks!

Set = W-4
- REPUBLIC P-47D — The wonderful Thunderbolt
- SPITFIRE 2 — Battle of Britain hero
- MESSERSCHMITT Me-109J — WW-2 German fighter
- CURTISS P-40D — American WW-2 Warbird

Just off the press! two new Wylam sets

Set = W-5
- GRUMMAN F6F-3 — Navy's shipboard fighter
- DOUGLAS C-54 — Air Force transport
- DOUGLAS A-26 — Invader—now B-26
- BOEING B-17 — The Flying Fortress
- CONSOLIDATED B-24 — Liberator—a heavy!
- CURTISS A-25 — Navy divebomber

Set = W-6
- CONSOLIDATED PBY — That Catalina!
- NORTHROP P-61 — Black Widow!
- BOEING B-29 — Famed Superfortress
- BOEING C-97 — Military transport
- MARTIN B-26 — Medium bomber

For over 20 years, William Wylam has been an acknowledged master of the detailed drawings of historically famous airplanes. MAN is happy to comply with the many requests for Wylam plans by making available this selection

MODEL AIRPLANE NEWS
551 Fifth Ave., New York 17

EACH SET . . . . $1.00 ALL SIX . . . $5.00

Enclosed is for plan sets numbered in boxes below

Please print your number DISTINCTLY in box for each plan you desire.

PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =

NO STAMPS PLEASE

NAME PLEASE PRINT

ADDRESS

CITY ZONE STATE

ADVERTISING INDEX—OCT., 1959

Ace Radio Control	38, 39
Ambroid Co., Inc.	41
America's Hobby Center	6, 7, 8
Babcock Models, Inc.	55
Berkeley Models, Inc.	64
Bonner Specialties	48, 55
Broadfield Air-Models	40
CG Electronics Corp.	3
Champion Products, Inc.	56, 2nd cover
Citizen-Ship Radio Corp.	47
Cleveland Model Products Co.	52
Comet Model Hobbycraft, Inc.	1
L. M. Cox Mfg. Co., Inc.	29
Craft, Model & Hobby Industry	46, 55
Curtis Model Products Co.	46
Dealers Hobby Supply	48
The deBolt Model Engineering Co.	40
Dynamic Models, Inc.	56
ESSCO	53
Enterprise Models, Inc.	52
Forster-Appelt Mfg. Co., Inc.	54
Fox Manufacturing Co., Inc.	3rd cover
Carl Goldberg Models, Inc.	31
Grish Brothers	50
Paul K. Guillow, Inc.	35
Gull Model Airplane Co.	37
Gyro Electronics Co.	63
Harleyford Publications, Ltd.	59
Hawk Model Co.	50
Herkimer Tool & Model Works	5
Jaico Products	48
K & B Allyn Co.	44
Kap-Pak Products, Inc.	40
Lee's Hobby Supplies	48
LePage's, Inc.	58
Minnesota Engine Works	48
Modelcraft	34
Monogram Models, Inc.	45
Pactra Chemical Co., Inc.	4th cover
Perfect Parts Co.	2
Polk's Model Craft Hobbies	53, 63
J. Roberts Model Mfg. Co.	60
Scientific Model Airplane Co.	42, 43
Sterling Models	46, 47
Stewart-Lundahl Co.	2
The Testor Corporation	32, 33
Top Flite Models, Inc.	49
Veco Products Corp.	61
Wil-Cap Co.	48
World Engines	54
X-Acto, Inc.	54
C.A. Zaic Co., Inc.	51

FLIGHT CONTROL

THE EXCITING, NEW 3-LINE CONTROL SYSTEM

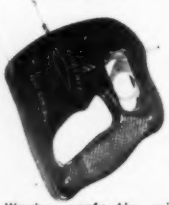
PLANE UNIT $2.00

NEW PLANE UNIT!!! simple, easy installation. —very smooth operating mechanism—strong construction—will withstand extreme line-pull tests. Full elevator movements at all motor-speed positions. Very simple push-rod connections—lead-out cables attach in same manner as regular bell-crank—

INSTANTANEOUS MOTOR-SPEED RESPONSE at your finger tip—take-off and land whenever you want to and as often as you please. Hover the model very easily—70% longer flight on same amount of fuel—stunt flying unparalleled by any other method of control.

LIGHTWEIGHT, DURABLE HIGH-IMPACT plastic handle with mechanism that equalizes line-pull of plane at all times. Trigger or auxiliary lever allows precision control over a wide range of power variation and many extra new easy-to-operate controls in the model.

HANDLE $5.95



WRITE FOR DETAILS OF FINEST MOTOR-SPEED control ever devised. "FLIGHT CONTROL" and Works perfectly with radio control.

J. ROBERTS FLIGHT CONTROL

MODEL MFG. CO.

BAKER, OREGON

MAN At Work

(*Continued from page 4*)

swapped ships with Vladimir Matveev.

Although the U.S. has been skunked in many years, we've always sent the best that the elimination turns up. The one thing the '59 bunch had was experience, years of it, at contests big and little, domestic and foreign. Bilgri and Kothe had been to Europe before on US teams. First-timer Bob Hatschek had many wins under his belt including the two-time capture of the venerable Mulvihill trophy. Eliminations give "everyone" a chance to make these teams but, in most years, our best necessarily includes one or two who have known little of the tremendous pressure of flying in Nationals or Internationals.

Speaking of experience, Woody Blanchard put in an incredible eliminations for all three events, attaining ten consecutive maxes in power, at the Frederick, Md., eliminations. All were "boomers."

• • •

► Confab with some modelers from the next oasis. These lads invented the tab-on-line deal in control line that caused the week-long hassle at the last Nats—is it G-line, challenged the crictics, and is it really flying the model like the rules say? Who has to "fly" a speed job, these guys retort. If you reach out and bump the mono-line up, the ship seeks a higher altitude, maybe another 18 inches and just goes round and round. Bump it the other way and it goes slightly lower. One handle was fitted over the stanchion. Without a pilot the model came within 5 mph of the speed record! And tales of incredible scale efforts—couple of guys who equal Deans, of Texas, so you know what we mean. One modeler whose German WW 1 fighter would make the original airplane look crude, sent a carving of the pilot's head to the widow to check the "expression."

An RC duration attempt we heard of flew away after 20 minutes—with 14 hours of fuel on board! If ever found, will top all fly-away stories . . . . after a few sessions of observing RC flying in the New York area, conclude it the nation's worst. Sure agree with Dunham that the flat-trim variation of the Astro Hog is not for the average Joe. Galloping Ghost is prettier to watch. Rudder-only is worse than it was five years ago. Flyaways, boffs, blunders and bangs. Come to think of it, out of town sessions we've seen are shockers, too. Radios are better than ever but the flying is worser and worser.

• • •

► If anybody finds out what is going on with the FAI Power event, please let us in on it! Reading Barry Haisman's letter to Dave Thurber, we find the Canadians similarly up in the air. Barry is down in the dumps over the lack of interest and support from Canadian dealers. Quoting them, he says, "Nobody flies FAI" or "I'm not interested in FAI flying."

"It has nothing to do with the class of model," Haisman declares. "It is a matter of national pride of supporting a small group who knock themselves out to help themselves and to produce models that compete with hotshot Europeans. There's too much concern with the bottom end of the sport, beginners and juniors and all that jazz. What of the top end?

"Shouldn't we create a healthy situation towards which any intelligent, energetic youngster should want to strive? To say that representing your country in world competition is not worthwhile because you don't like the rules, or because you don't happen to build that class of model is the ultimate in selfishness and narrow-mindedness.

"Some of these creeps (Barry means modelers now—Ed.), simply lack the guts to work at a tough specification, and are afraid to compete with some of the keenest men in the sport. They just wouldn't look good in FAI company.

"Cheap rationalization inspires their opinions about FAI. Incidentally, with one exception, I got no money from C/L and RC groups or individuals and suppose these characters will clamor next year for the trip to Europe for the RC and C/L World Championships."

No sour grapes, those hard words of Haisman. In the US, clubs have petitioned the AMA against increased dues, if the money was to be wasted on trips to Europe. Well known US modelers don't want to compete with government-backed foreign modelers, for this isn't their idea of "fun." It isn't ours either, but so what?

MAN at Work has been well bombed by irate east European modelers who don't dig this fly for fun deal, and who resent the state-sponsored tag. Personally, we don't care how they prepare, for it is their business and it is no sin for anyone to prepare for competition in whatever manner they find best. State sponsorship of some foreign teams is important to us only in realizing that what we are up against is well prepared competition. The point is that in the US, or Canada, or in any country where preparations must be informal, the FAI events must be supported and we must see to it that the fewest possible boys go forth on a man's errand.

• • •

► The Detroit Balsa Bugs have a fine argument for a proposed new record class of indoor models, for less than 100-foot ceilings. The plan makes sense. Once as popular as outdoor models, indoors began to slip, it was claimed, after records first were set in the 200-foot high Akron air dock. Prior to that, it had been possible to set records in relatively easy to find locations. For record purposes we then would have the present unlimited ceiling class (Bill Tyler just phoned to say he did over 30 minutes with a B job at Weymouth airship hangar), and the new, proposed "low ceiling" category. Record tries now run about two years apart. With less than 100 foot ceiling required, three or four attempts could be made a year. Many large cities have halls or arenas with ceilings to suit. It is well nigh impossible to develop a record job by competing once a year at the Nationals and testing for a 160-foot ceiling, say, is not valuable when the available test ceiling is only 50 to 60 feet high. As the Bugs see it, the new class would cover current, most popular events, such as A, B, C and D, mike and paper-covered, B and C cabin, and HL gliders. If you favor this idea, why not write the AMA?

• • •

► To the oldtimers who keep asking what happened to Miniature Aircraft, good news. A. Sala and Steve Curtiss (Curtiss Model Products, Box 293, Staten Island, N. Y.) will produce kits under the Miniature name and, as Omega, turn out rc control boxes, electric centering proportional actuators and servos. Miniature will continue in scale, near additions to include a 1⅛ inch scale SE-5 for RC or free flight, .09 to .15; and the Stearman PT-17, same scale, .19's to .29's . . . . Sacramento Skyoneers Club (Martha A. Sherman, 2518 Furmint Way, Rancho Cordova, Calif.) invites all modelers, especially juniors who are interested in free flight, to attend club

(*Continued on page 63*)

VECO DOES IT AGAIN!...

FIRST PLACE
in Open Stunt Competition at 1959 Nationals

VECO Leads All Others in Stunt Competition!
More Thunderbirds were entered in all classes of stunt competition at the '59 Nationals than all other types combined!

WON BY BOB PALMER
flying a
VECO products **THUNDERBIRD**
powered with a
VECO products **.35 ENGINE**
of course!

Stunt Champion Bob Palmer proudly displays his Thunderbird.

More VECO products Accessories, too!
In all National events, Veco accessories—spinners wheels and fuel tanks—were used by more contestants than all other brands combined!

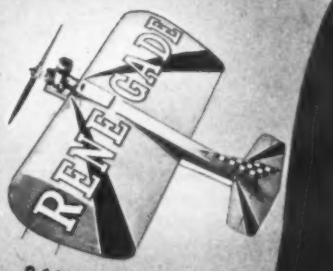
VECO PRODUCTS ARE SOLD BY LEADING HOBBY DEALERS EVERYWHERE...VECO PRODUCTS CORP., BURBANK, CALIF.

VECO ENGINEERING AND QUALITY MANUFACTURING ARE THE REASONS CHAMPIONS PREFER VECO PRODUCTS!

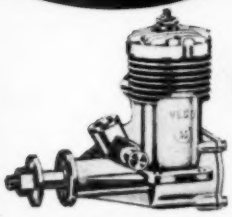
Look for the name that guarantees championship performance in...
- MODELS
- ENGINES
- BOATS
- ACCESSORIES

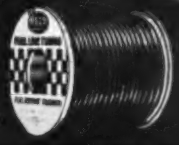
VECO products

New RENEGADE
A top combat winner in Southern California! Simple to build from pre-fab kit.
Wing span 33", area 330 sq. in.
Recommended engine: VECO ".35C".



C-14.....3.50


.35C COMBAT ENGINE
Built for combat and rat racing. Crankshaft absorbs strains of violent maneuvers. High speed porting gives top rpms and thrust. Special fitting for use with pressure tank — $16.95

Veco FUEL LINE TUBING

Made from specially compounded synthetic rubber (not neoprene) to resist glow fuels. Soft, extra flexible, resists cracking, hardening. 3 sizes—small, med., large.

Veco WHEELS

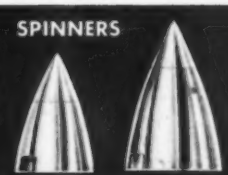
⅜ to 4½" Diameter
Largest selection of rugged, lightweight, die cast hub wheels. Inflatable, semi-pneumatic, sponge or hard rubber tires.

TUGBOAT
27" harbor or 35" ocean-going models. Expertly engineered for multi- or single-channel R/C. Formed styrene hull, pilot and deckhouse. Die-cut plywood planked deck. All metal fittings provided.
Harbour Tug—$18.95 • Ocean Tug—$24.95.

PRESSURE FUEL TANK $1.45.
Designed for combat and stunt. Longitudinal baffle keeps fuel under pressure. Power failure and engine sag eliminated. 2 oz. to 4 oz.

PROFILE FUEL TANK

Completely new principle of baffling assures steady fuel flow to engine for smoother performance. 3 sizes —3, 3½, 4 oz. $1.25

SPINNERS

Hand spun aluminum for maximum strength and lightness, perfectly balanced. Regular or needle nosed. 1" to 2¼" diameter.

VECO PRODUCTS ARE SOLD BY LEADING HOBBY DEALERS EVERYWHERE...VECO PRODUCTS CORP., BURBANK, CALIF.

Complete Listing

MODEL AIRPLANE NEWS FULL SIZE PLAN SERVICE

The editor's selection of all time favorites, including completely new combinations of the greatest designs. All types!

PLAN SETS 50c p.p.

PLAN OF THE MONTH

63. WACO GLIDER: Scale towliner.
BI-FLI: RC, Inter., .15's.
GUIDED MISSILE—U/C Combat, .35's.
Wooten's latest combat is the Guided Missile. Bi-Fli great vari-comp stunter, by Kraft.

4. SURE FUN: UC Sport, .29-.35
PROFILE SILVAIRE: FF Profile, ½A.
ZEPHYR: Rubber, Fuselage
Control line on floats. Sport Gassie.

9. AEROCOM'DER: Scale, U/C, 2 .15.
MARS: Bob Palmer stunt, .29-35.
NOBLER: Aldrich's Nats Winner, Stunt, .29-.35. **Palmer and Aldrich, plus a twin ukie. Imagine!**

10. SMOG HOG: Bonner's Multi RC, .19-.35.
STRATOLINER: 2 Half A, U/C.
GUARDIAN: U/C Scale, .29 up.
Greatest Multi RC of all time—a beauty!

11. GAMBLER: Mirror Stunt Winner, .29-.35.
DOUGLAS B-66: ducted fan FF, .049.
B-66, the ducted fan job that beats all others.

13. T-CRAFT: FF scale, .049.
FENO: Combat, stunt, .29-35.
PADDY'S WAGON: Contest FF, .049.
Paddy's Wagon—one contest job ok for beginner.

14. HEATH PARASOL: RC, FF, Scale, .075 .09.
GUARDIAN: Nats carrier winner, .29's.
SHARPIE: FF Sport, .02-.049.
—Guardian a dilly.

15. RE-8: WW1, U/C. .29-.35.
FLAPPING WINGS: Rubber, ornithopter.
BOOMER: FF, sport, pusher, .049.
Can planes fly like birds? Ornithopter sure does.

22. MOONEY MITE: ½A Scale FF.
'55 RAMBLER: .29 Team Racer.
WACO CABIN: ½A FF Scale
The Mite, stable, real looking low winger. Rambler still beats 'em. Waco—Cute!

43. EQUALIZER: .15 to .19 multi, RC.
QUICKIE TRAINER: Speed, .29.
AMAZOOM: FF, contest, .15.
deBolt's best, the Equalizer? Amazoom—Stan Hill's hi-thrust.

44. CONVAIR'S DELTA: Jetex FF.
LIL DYNAMITE: .15 stunt, UC.
SWAT: ½A, FF, contest.
A trio of exceptional planes.

45. ASTRO-HOG: Multi RC, .29-.35
MITCHELL: Profile, .09's, .15's UC.
Dunn's low wing radio—tops! Nothing matches this multi. The Mitchell a fine flier.

46. PROPJET B-47D: U/C, .15's.
RUFFY: Stunt, .29-.35.
NOR'EAST'ER: Nordic glider.
B-47D, beaut of a project Ruffy: big winner—it's new!

47. FOKKER E-3: 1/2A, FF, Scale.
NAVY RACER: Rubber, semi-scale.
WOODY: .29-.35, UC Combat. Hot!
E-3, beautiful model, fine flier.

48. SPORTCOUPE: .09, U/C, Stunt.
WHATIZIT: .35, Combat, Wooten.
SWIF-F-FT: Jetex, two sizes!
Whatizit, settles fuse-wing debate!

50. DUMBO: PBY Scale, U/C, .19's.
FRENCH OLDTIMER: 1914, ½A, FF.
Dumbo, the Catalina, man-sized ukie, takes off, lands on water or ground.

51. AMERICANO: .15 FF, by Blanchard.
BOMARC: Scale, Jetex, missile.
CUTLASS: Sport U/C, .049's.
Scorpion power makes Bomarc terrific flier. Americano is National Champ's very latest.

52. GAUCHO: RC Stunt, .29-.35.
THE CHAMP: Best U.S. Wakefield.
LAIRD SOLUTION: U/C Scale, .15-.23.
Gaucho, Argentine Champ, does pattern inverted. Champ, a single Wakefield!

53. SNAP: Sport U/C, .19-.23.
PELICAN: PAA Cargo, .049.
WINDMILL: FF, 'giro, .02-.049.
For proto take-off and landing realistic Snap tops 'em all. Other two, collector's items.

54. SATELLITE: Hunter's FF, .19-.35.
SUPERMARINE S-6B: U/C Scale, .09-.15. Satellite is top contest free flight '58-'59. Schneider racer, S-6B seaplane is one of FAST club's best projects.

55. DETROIT STUNTER: U/C .29-.35.
HORNET MOTH: FF, Scale, .02-.049.
THE BARDON: Wakefield.
D'troit St.: McDonald's Strathmoor, Nats favorite. Bardon: Canadian and US Nats winner, tops in rubber.

56. RYAN PT-22: U/C, .19-.25.
SNIPE: Gurnett's Nordic.
Lovely scale job, that PT, with workable flaps, throttle.
Tow-line glider long, strong wing, right sections, etc.

57. Twin Lizzie: 1/2A FF.
Com-Bat: U/C, .29-.35.
Fireboat: Marine, RC.
T-Liz, a cute sport job.
The boat, Musciano, a beaut.

58. SE-5: FF, .09-.15
PIED PIPER: Rat Race, UC.
½ WAVE: RC, .049
SE-5 most beautiful flying scale model ever published.

59. GASSER: Willard RC, .09
1958 WAKEFIELD WINNER
SKY LANCER: Team, Proto, .29
Gasser, hot pylon racer. Both the others beauties, too.

60. BELLANCA: Scale U/C, .19-.29
HALF ALPHA: FF, .049
DUNWOODY GLIDERS
Gliders (4) from Dunwoody series of articles.

61. TRI-TRAVELER: Sc, FF, .049
HOUDINI: RC, .15
DIZZY BEE: Sp., U/C, .29
Maneuverable but stable, Houdini, a low wing; Dizzy Bee, Lauderdale's latest Mono-Line.

62. SAFIRE: Delta U/C St., to .35.
ASTEROID: Rubber and glider.
THE HOOK: Free flight, 1/2A.
Different but good, the Safire. Asteroid for beginners, but is contest winner, too.

PLAN SETS 50c p.p. NO STAMPS PLEASE

MODEL AIRPLANE NEWS • 551 FIFTH AVENUE, NEW YORK 17, N. Y.

Enclosed is _____ for plan sets numbered in boxes below

PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #

Please print your number DISTINCTLY in box for each plan you desire.

PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #

List additional plan orders on separate sheet.

NAME _____ PLEASE PRINT

ADDRESS _____

Limited Supply of Plans Listed Below. Order Early! Check Correct Number on Coupon

24. Aero Bat, Snoopy, Seagull
26. Corsair, Gyro-Glider, Santanita
28. Cougar, '55 Nordic Winner, Dizzy Boy
30. Great Lakes Trainer, Triple Threat RC
34. Corben Super Ace, Cessna 310, Profile Lightning
40. Mustang UC, Gliders 5, Bi-Gone FF.

BEGINNERS -- Get Started in Radio Control!
Gyro says it can be done easy as 1...2...3, with this low cost, high value R/C Combination Special.
Here's what you get:

1. Easy build, hand-held transmitter kit w/tube, crystal, punched aluminum case, and all quality parts, less battery.
2. Easy build, sensitive receiver, range checked over one mile. Complete kit w/tube, punched & eyeletted chassis, Gem Relay, and all quality parts including dust-proof plastic box.
3. Banner Self-Neutralizing Escapement.

3-in-1 Deal Special Price.....only $21.50

GYRO BREAKS THE TONE BARRIER.....with the New Tone King Receiver.

•High Stability detector circuit •Two transistors & one hard tube •1½V & 30V batteries •No sensitivity control, with one simple non-critical adjustment •Operates from any tone transmitter w/600-1000 c.p.s. modulation. Perfect mate for Gyro's famous RZT Transmitter. •Covers all R/C frequencies from 26.995Mc to 27.255Mc.

With installation kit, only $24.95

All Gyro 1959 powerful MOPA Transmitters comply with new FCC Regulations, and can be operated on all 6 R/C frequencies. Immediate delivery on all models!

RADIO CONTROL BOOKS:

Model R/C-Safford $2.65; R/C Handbook-McEntee $2.25; R/C Models-Camm $2.95; R/C for Model Boats-McEntee $1; R/C for Model Aircraft, Boats-Berkeley $1; R/C Mechanisms-Stock $1.25; R/C of Model Aircraft-Sommerhoff $2.50; Simple R/C-Hundley $1.40; R/C of Models-Sommerhoff $1.40; R/C of Model Ships & Aircraft-Judd $2.40; R/C Model for Amateurs-Kerney $1.40; Model Boats R/C-Casebrook $1.65; Electronic Hobbyists Handbook-Turner $2.50; Transistor Circuits-Turner $2.75; Transistor Theory & Practices-Turner $2.95. Transistor Techniques $1.50; Electronic Puzzles & Games-Mandle $1.95.

RELAYS & ESCAPEMENTS

Gem 5000 ohms $4.25; Micro adjust 5K $4.95 7500 ohms $5.45; Adjust 7500 ohms 5.95
Gem DPST 100 ohms $4.95; DPDT 100 ohms 4.95
DPDT 7500 ohms $6.85; Sigma 4F 8000 ohms 5.98
Sigma 41F 10,000 ohms $1.45; 5F 4K, 8K, or 16K $3.95; Reed Relay adj. (3) $13.95; (6) 14.95
(8) $17.95; "Peanut Size" 6V $1.45; 1½V 100 ohms $2.50; Babcock Mark II $7.95; Boat Servo 8.95
Banner: Regular $5.95; Varicomp 8.95
New Banner Servo $12.95; Dual Varicomp 18.95
Rudder Elev. Varicomp $9.75; Cobb Electro Servos: Comp $9.95; SN $8.95; 3-Pos 8.95
Slim Line Servo $8.95; Selector 4 8.95
DeBolt Servos: 2PN $11.95; 3PNX $14.95 & others
Reverse Stop Relay for boats $3.25; Aristomatic-Forw'd, Rev., Right, Lft, Stop $10.95.

Include Postage, Save C.O.D. Fees, Excess Refunded
Send for Gyro's latest free 16 page catalog. Dealer Inquiries Invited.

GYRO ELECTRONICS CO. 36 WALKER ST NEW YORK 13 N Y

meetings, held twice monthly at the home of Bruce Hannah, above address . . . . Bill Judge tells us about a rat race with all contestants on roller skates! . . . . watching a Humming Bird glider (with 45 hp auxiliary motor) Leon Shulman cracked, "No wonder he gets nice flights—a six-minute motor run!"

• • •

► Sixth King Orange Internationals, December 26 through 30, Miami, Fla., under primary sponsorship of Air Training Corps. Over $5,000 in scholarships, trophies, prizes, at buffet victory dinner. (Tom Sutor, 5313 Granada Blvd., Coral Gables 46, Fla.) . . . . Don Jehlick, chairman of the Control Line International Competition (1064 Crane Drive, Falls Church, Va.). Proposed are two-round eliminations, first round in 11 AMA districts, top three winners each event to second round, two to three weeks later at same sites. Second round, stunt, at three of the 11 sites. Finals may be next July or August, eliminations next May . . . . Lorenz recently reported RC eliminations details. If the boys have not been flying eliminations under FAI flight schedules, not AMA, they may get their eyes opened by the Germans . . . . Hatschek has an allergy to grass (of all things) and wears a gas mask at contests. During the Wakefield finals he was asked in very broken English, if this was a device for smelling "thermics". Had he nodded yes, we might have had an international incident and new FAI rules banning such devices. American-Russian joke at the Wakefields was the cry "Mackenzie!" The Canadian spoke French. So did the Russian interpreter. When anyone from either team wished to converse with a counterpart, up went the cry, "Mackenzie!" See that Broadfield Air Models is still making those RC field boxes. After watching guys spread tools, fuel, meters, etc., in the dirt, highly recommend these unique field boxes. For small and medium sized crates —the ship is placed in brackets on top of the box. Heard one pappy guy remark that the only time you had to bend over was to pick up the airplane after landing.

• • •

► The much awaited book, Air Aces of the 1914-1918 War (Harleyford Publications Ltd., Letchworth, Herts, Eng.), due out June 1, was delayed by the English printer's strike (raising hob, incidentally, with the British model magazines as well.) Inasmuch as Aces was already printed, but unbound when the blow fell, MAN obtained a special paper-covered sample. Similar in size and appearance (it has over 200 slick paper pages) to Camouflage and Richthofen, earlier books in the series now well known in the US, Aces will be a sure hit with the modelers, collectors and anyone else who appreciates the fine reporting to say nothing of numerous interesting photographs, of the WW 1 planes and men. An invaluable reference and a completely absorbing account of top air duels and duelists of the period. To the many MAN readers who are waiting copies, we can report the book well worth waiting for.

• • •

► Some guys just naturally have no luck. When the August cover—Paul Mantz, the Flying Tiger model, etc.—was in the works, fictitious names had been assigned to the two boys in the picture. Tommy Millett and Mike Fiske figured they came out pretty keen on the cover but, gosh, in the Plane on the Cover item on page four, a couple of spooky interlopers named Sparks and James stole the credit! Tommy and Mike, we are sorry it had to happen to you! And also due to those atom bombs and sunspots, another gremlin called the Dauntless, in Next Month's Cover (which would be October now this month) in the September issue, a Ryan ST. Who's on first?

A PLACE TO FLY!

Free reprints of this article on how to obtain a flying site, published in August MAN, are now available to clubs, officials, etc.

CORRECTION

Through a mechanical error NEXT MONTH'S COVER picture, page 4, September issue, the Dauntless, was identified as Ryan ST. The Ryan appears on the November cover.

GIANT PREFABRICATED SUPER SCALE GAS MODEL KITS

These GIANT kits are chock full of EXTRAS. Kits come with full size—"build-on-'em" plans—with many perspective sketches for easy, accurate and quick assembly. All structural parts of strong plywoods and hardwoods are fully and clearly cut out, identified and precisely finished... ready-to-assemble. Balso planking is included. Also included: semi-pneumatic wheels, fully formed landing gear, formed bubble canopies, gas tanks, props and hardware. Aluminum cowls and shock-absorbing gear where needed—**All prices...less engines.**

BI-PLANES - $14.95

BEECHCRAFT (40" Span • 32" Length)

BOEING PT-17 (48" Span • 34½" Length)

GRUMMAN F3F1 Shipboard Fighter (48" Span • 33½" Length)

CURTISS HAWK F11C4 (48" Span • 34" Length)

Dealers' Jobbers' Regular Trade Prices
POLK'S HOBBIES
314 FIFTH AVE Dept M-10 N Y C

Berkeley's ALL TIME TOP TWENTY FIVE KITS

Many model builders have asked us what airplane models are the most popular in the Berkeley line.

Out of over 125 models, here are those that have been chosen by more model builders than any others. If you are selecting your next model and haven't already built the models listed below, you will be choosing smartly to pick one of these Berkeley kits.

RADIO CONTROL

1st, 2nd, 3rd, 4th in Multi - 1958 Nationals - 3rd in Plyon Racing

An exceptional kit.

Flutter-proof Ailerons - Steerable Tailwheel

$15.95

Radio-Control or Controline Aileron Control

"ASTRO-HOG"

For .35 Engines (R.C.) .45 to .99 (Controline)

72" Wingspan - Length 50"

Cabin Doors for R.C. access.

Radio-Control

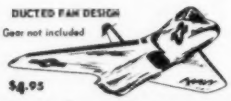
$8.95

"ROYAL RUDDERBUG"

For .14 to .23 Engines - 42" Wingspan

Cabin doors for R.C. access. Proven in contests

DUCTED FAN SCALE



DUCTED FAN DESIGN

Gear not included

$4.95

Douglas "SKY-RAY"

For "1/2A" Engines - 25" Wingspan

Ideal for "Pull-Starter" Engines - Flies out of sight

KING SIZE SCALE

Radio-Control - Free-Flight - Controline

$10.95

PIPER CUB "J-3"

For .15 to .25 Engines - 71" Wingspan

A rugged proven design. Large size ideal for R.C.

Radio-Control

Free-Flight

Controline

$9.95

"WACO CABIN"

For .14 to .29 Engines - 52" Wingspan

Ideal Biplane for multiple R.C. installations

Radio-Control - Free-Flight - Controline

$5.95

Flaps, Elevator, Nose Wheel may be actuated

Piper "TRI-PACER"

For .035 to .15 Engines - 44" Wingspan

Flaps, Rudder, Elevator and Nose Wheel actuate

Radio-Control - Free-Flight

$14.95

CESSNA "170"

For .25 to .35 Engines - 72" Wingspan

Perfect scale, stable, rugged, good wind penetration

CHAMPIONSHIP SCALE 1/2A

Free-Flight or Controline

35" Wingspan

$2.95

CESSNA "180"

.049 Engines Free-Flight .049 to .099 Controline

Authentically Detailed - Easy to Build and Fly

$2.95

Free-Flight or Controline

35" Wingspan

PIPER "SUPER-CRUISER"

.049 Engines Free-Flight .049 to .099 Controline

Excellent flyer Nationals winning design

Free-Flight or Controline

$2.95

36" Wingspan

Cessna "BIRD DOG"

.049 Engines Free-Flight .049 to .099 Controline

This famous liaision plane is a fine flyer, fun to build.

Free-Flight or Controline

$2.95

35" Wingspan

"SUPER CADET"

.049 Engines Free-Flight .049 to .099 Controline

Many times a Nationals Winner, easy to build.

STUNT

Semi-Scale - Stunt Controline

$7.95

Curtis P-40 "WARHAWK"

For .19 to .35 Engines - 45" Wingspan

Metal Cowl - Stunt Flaps - Flying Tiger Decals

5/8" SCALE

For Free-Flight or "Monoline"

$1.95

P-40 "WARHAWK"

For .020 Engines - 23" Wingspan

Flying Tiger Decals - Plastic Cowl, Spinner,

DELUXE SCALE -

Controline

$8.95

North American

P-51 "MUSTANG"

For .15 to .29 Engines - 28" Wingspan

Carved and Hollowed Fuselage - Sheet Planked Wings - Authentic Decals Canopy - Canopy

Controline

$5.95

CESSNA "195"

For .19 to .36 Engines - 36" Wingspan

Metal Cowl - Step Keel Fuselage Alignment

STUNT

All Balsa Wing - Stunt Controline

$1.50

ZILCH "20"

For up to .074 Engines - 20-1/2" Wingspan

Especially designed for rapid assembly, small engines

$1.25

"MINI-ZILCH"

For .020 to .051 Engines - 20" Wingspan

Easy to build Stunt Controline for small engines

$5.95

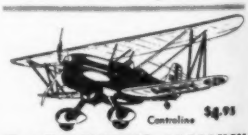
Republic

Controline

P-47 "THUNDERBOLT"

For .19 to .29 Engines - 32-3/4" Wingspan

Rounded Edge Planking, Flaps, Ailerons



Controline

$4.95

P-6E "CURTIS HAWK"

For .09 to .15 Engines - 26" Wingspan

Metal Cowl - Metal Wheel Pants - Colorful Decals

COMBAT

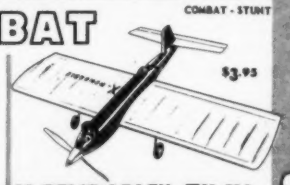
TAILESS COMBAT DESIGN

$3.50

"ORBIT ACE"

For .19 to .35 Engines - 425 sq. in. area 40-1/2" Wingspan

Balanced Elevators - Wing tips washed out to prevent tip stall

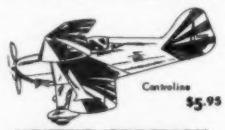


COMBAT - STUNT

$3.95

X-PENDABLE" ZILCH

For .19 to .35 Engines - 38" Wingspan



Controline

$5.95

"PITT'S SPECIAL"

For .19 to .33 Engines - 25" Wingspan

Metal Cowl - Metal Wheel Pants - Decal Flare Design

Controline

$4.95

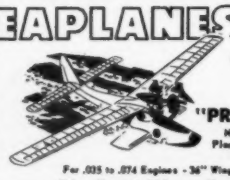
North American

AT-6 "TEXAN"

For .19 to .33 Engines - 31" Wingspan

Metal Cowl Embossed Canopy - Army, Navy Decals

SEAPLANES



Free-Flight

1/2A

"PRIVATEER"

N.A.C.A. Long Planing Hull Design

For .035 to .074 Engines - 36" Wingspan

Takes off water in 15 foot run. Easy to build

$2.95

CONTEST

Free-Flight

RAMROD "250"

$2.95

For "1/2A" Engines - 40-1/2" Wingspan

Trims for Contest flying in three flights or less

BERKELEY MODELS INC.

WEST HEMPSTEAD, NEW YORK, U.S.A.

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supplies, Dept. MA, West Hempstead, N.Y. Please include 25¢ packing & postage

These models are usually stocked by hobby shops.

Your dealer will be happy to order any other in our line.

FOX POWER

NEW RECORDS SET

Larry Grogan and his winning plane.

CLASS B SPEED

151.82 M.P.H. Turned by Tom Davis at Montgomery, Alabama, June 21st, to win 1st and set new National Record. **Power - Fox 29X.**

PROTO

122.23 M.P.H. Turned by Larry Grogan of Dallas, Texas to win 1st and set a new record, June 7th at Longview, Texas contest. **Power - Fox 29X.**

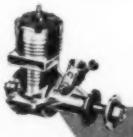
Newt Stanfield's GO ROUND II, Endurance winner.

ENDURANCE

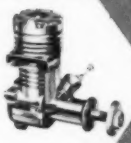
3 hrs. 25 min., 51 sec. A new National Endurance non-refueling record set June 7th at Milwaukee, Wisconsin by Newt Stanfield flying his GO ROUND II. **Power - Fox 19.**

FOX COMPETITION QUALITY MOTORS

FOX 19
FOX 201
FOX 25
$14.50

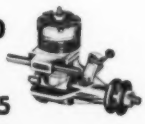


FOX STUNT 29
FOX STUNT 35
$15.95



FOX COMBAT SPECIAL
FOX 29X
$19.95

FOX RC 19
$19.50
FOX RC 35
$24.95



FOX MOTORS ARE MANUFACTURED IN A MODERN, NEW PLANT AT FORT SMITH, ARKANSAS BY MODEL BUILDERS

Your Hobby Should Be Fun With Fox Power you'll be a happy flyer — not a cranker. BUY A FOX OR ROCKET TODAY AND START FLYING FOR FUN.

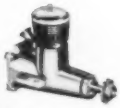
VALUE LEADER ROCKET MOTORS

by FOX

FOX ROCKET 35
$11.95
A POWERHOUSE

FOX ROCKET 15
$6.95
IT'S A WINNER

FOX ROCKET 09
$4.95
EASIEST STARTING



SMART CHAMPIONS CHOOSE FOX

FOX MANUFACTURING CO., Inc.
Designers and Manufacturers of the World's Finest Model Airplane Motors
5305 TOWSON AVENUE, FORT SMITH, ARKANSAS

Make the easy way to paint

Aero Gloss spray

your way to new model beauty

For years modelers have been relying on Aero Gloss quality for the finest finish on their planes. Now Aero Gloss Spray—from the aerosol authorities—makes it easier than ever to give your plane a more lasting, more brilliant protection against weather, wear and hot fuels. In the handy-to-use spray you can finish the biggest plane in the shortest time... but, big or little, YOUR plane deserves AERO GLOSS.

Radio Control modeller Tom E. Dapson uses Aero Gloss Spray to protect his 6-foot R/C plane.

Big 16 oz. Spray Can **1.79**

6 oz. Spray Can **98¢**

Large 4 oz. Jar of brushing Aero Gloss **60¢**

pactra

PACTRA CHEMICAL COMPANY, 1213 NORTH HIGHLAND AVENUE, LOS ANGELES 38, CALIF.